

IN THE CIRCUIT COURT OF COOK COUNTY - CRIMINAL DIVISION

STATE OF ILLINOIS

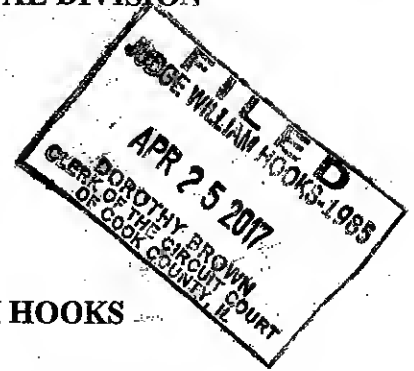
V.

COURTNEY HENDERSON

16 CR 1321601

JUDGE WILLIAM HOOKS

PRESIDING



MOTION TO EXCLUDE FINGERPRINT TESTIMONY

DUE TO MULTIPLE SYSTEMIC FAILURES

Courtney Henderson, through the Cook County Public Defender, requests that this Court exclude the testimony of Officer Malone. In support thereof, Mr. Henderson states the following:

I. INTRODUCTION

The practices of the Chicago Police Department Latent Print Unit (LPU) violate every professional norm and standard of good practice in the scientific community, with the result being unreliable forensic opinions by examiners who use flawed methods and misstate the probative value of the evidence. The problems with the LPU are many, and they include the following:

- **Protocols-** While standard practice in the fingerprint community requires that examiners follow written laboratory protocols that define the examination process and the opinions that result from the examination process, the LPU does not operate pursuant to such protocols.
- **Quality Assurance-** While fingerprint labs in the U.S. are required to maintain a documented quality assurance program designed to identify and correct errors, the LPU has no such program.

- **Training-** While other fingerprint labs have documented training programs designed to re-educate examiners on the fundamental changes and reforms in the field, the LPU has no such training program and its examiners lack basic knowledge about the present state of their own forensic discipline.
- **Validation-** While standard practice in the scientific community requires fingerprint alteration techniques to be validated for scientific reliability, the CPD uses techniques to alter the appearance of original fingerprint evidence without ever having validated any of the techniques to establish reliability.
- **Methodology-** While some fingerprint labs in the past permitted themselves to cheat by looking at the suspect's prints when attempting to identify ambiguous features in latent prints, this older method is no longer generally accepted yet still in use at the LPU.
- **Accreditation-** While hundreds of forensic labs across the country have gone through the accreditation process to establish the validity and reliability of their examinations, the LPU has side-stepped this process and sought to shelter its substandard practices from meaningful oversight.

As will be explained in detail below, the flaws with the LPU have been discovered through extensive subpoenas, through interviews¹ with and cross examination of LPU fingerprint examiners, through examinations of LPU casework, and through consultation with three of the country's leading fingerprint experts. The resulting picture is of a lab that is substandard in many ways, that has never met any external and objective criteria for proper functioning, and that employs examiners who overstate the probative value of fingerprint evidence due to a lack of training and understanding of their own discipline.

¹ More recently, LPU examiners have refused to answer basic questions during pre-trial interviews, based on inappropriate advice of CPD legal counsel. Based on this advice, LPU examiners refuse to answer numerous basic questions about fingerprint comparison, including but not limited to the following: 1) is there a recognized error rate for fingerprint comparisons, 2) is your method of fingerprint analysis subjective, 3) has the LPU validated fingerprint enhancement techniques it uses, 4) are you certified to conduct fingerprint examinations, 5) do you read forensic journals to stay current on developments in your field, 6) have any other LPU examiners disagreed with your opinions during verification in the last 5 years, 7) are there sources of uncertainty in your examinations, 8) does your lab have written professional development procedures, 9) describe your lab's Quality Assurance program, 10) does your lab have any written Quality Assurance procedures, 11) does your lab have a written ethics code, and 12) does your lab have a written procedure for conflict resolution and corrective action. (Attachment A). While this obstructionist tactic needlessly slowed discovery of LPU's substandard practices, it did not prevent discovery of the problems documented in this Motion.

II. IN VIOLATION OF PROFESSIONAL NORMS, THE LPU DOES NOT MAINTAIN PROPER PROTOCOLS DIRECTING ITS EXAMINERS IN HOW TO CONDUCT RELIABLE FINGERPRINT EXAMINATIONS.

Adequate protocols are a pre-requisite for the proper functioning of any crime laboratory.² Protocols assist crime labs in producing reliable results by defining appropriate examination methods, setting thresholds for what justifies association opinions, and providing for quality assurance programs to handle problems when they arise. According to the U.S. Department of Justice, fingerprint labs must have written procedures detailing how examinations of latent prints are to be conducted, dictating what conclusions should be reported after an examination is complete, and establishing a verification process.³ This requirement is so fundamental to the reliable functioning of a crime lab that the American Bar Association adopted a resolution directed to all crime labs, stating that “*procedures should be standardized and published to ensure validity, reliability, and timely analysis of forensic evidence.*”⁴

Because a lab cannot produce consistent and reliable results without written procedures, a forensic lab cannot attain accreditation unless the lab adopts complete written procedures. For instance, Forensic Quality Services (a national forensic auditor) requires that forensic labs maintain written procedures that detail the following: proper use of fingerprint processing techniques, proper examination methods, the process for resolving differences of opinion between an original examiner and a verifying examiner, the collection and preservation of complete case file documentation, the corrective action process, a schedule for periodic management review of lab practices, training needs of examiners, and quality control procedures to monitor the validity of examination results. (Attachment B).

² “The Fingerprint Sourcebook,” U.S. Department of Justice p. 12-S (2012).

³ Id.

⁴ www.americanbar.org/content/dam/aba/...justice.../crimjust_policy_am04111b.doc

The failure to maintain proper written procedures has been a contributing cause of the systemic failures of numerous crime labs across the country. For instance, when the Governor of Massachusetts ordered that a law enforcement crime lab cease operations, a post-failure audit by the Massachusetts Inspector General determined that the lab lacked basic written procedures outlining proper examination methods, and that this failure *“allowed [forensic examiners] to create their own discordant (and sometimes incorrect) practices.”* (Attachment C, p. 115). The Michigan State Police made a similar finding when they audited the failed Detroit Police Department Crime lab. (Attachment D). The MSP determined that the procedure manual for the Detroit Crime lab *“provides only an administrative overview with limited technical direction on how to perform an analysis.”* (Attachment D). Further, the audit concluded that *“the lack of well-defined procedures may allow an examiner to draw conclusions on an analysis that may be inaccurate,”* and also concluded that *“accountability is impossible”* when a lab maintains inadequate written procedures. (Attachment D, p. 21-22). Similarly, auditors at the North Carolina Crime Lab determined that inadequate written procedures were a cause of that lab’s systemic problem of examiners misrepresenting testing results. (Attachment E, p. 16-25). Finally, when the FBI discovered that one of its DNA analysts had been falsifying data from DNA testing, they determined after-the-fact that inadequate protocols prevented earlier discovery of this forensic misconduct.⁵

The Illinois State Police Crime Lab (ISP) provides an example of a fingerprint lab with extensive written procedures- both administrative procedures and substantive examination

⁵ U.S. Department of Justice, “The FBI DNA Laboratory: A Review of Protocol and Practice Vulnerabilities,” p. 130 (2004). <https://oig.justice.gov/special/0405/final.pdf>.

procedures⁶. (Attachment F). With regard to substantive protocols, the ISP has written protocols that define the proper method to be used, describe each step of the method and applicable decision standards, provide for proper verification, and define the scope of quality assurance. (Attachment F). ISP protocols specifically instruct examiners to use the ACE-V method, and define each required step in the ACE-V process, from analysis through verification. (Attachment F). ISP protocols define the threshold that must be met for an examiner to offer an opinion of an association between a latent print and a suspect, as well as the standard for a determination of “*inconclusive*.” (Attachment F). With regard to cases involving AFIS searches, ISP protocols define the minimum parameters for a latent print to be suitable for computerized searching (8 identifiable features and a discernible core and axis) and further require the preservation of these features in the case file. (Attachment F). Finally, examiners are specifically required to comply with a written quality assurance manual. (Attachment F).

In stark contrast, the substandard collection of memos that purport to be LPU’s fingerprint protocols does not resemble a real laboratory protocol in any way. (Attachment G). To start with, the memos do not even mention the method or methods to be used by LPU fingerprint examiners. The memos do not enumerate any steps to be taken by LPU examiners when analyzing latent print evidence, and do not define in any way the criteria for an association opinion or an exclusion opinion. Additionally, the memos do not mention a quality assurance plan of any kind, nor describe any quality assurance procedures for documenting and resolving

⁶ Some of the ISP procedures are administrative in nature, while others are substantive and go to the heart of the examination process. Administrative protocols describe various processes other than the actual examination of the print evidence- evidence handling and labeling, use of computer systems to generate documentation, and guidelines for interacting with other agencies. Substantive protocols describe the methods to be used for examination of print evidence, standards for determining whether a print can be associated with a suspect, and quality assurance procedures used to detect errors in analysis. While forensic labs must have both administrative and substantive protocols, it is substantive protocols (defining examination methods and providing for quality assurance) that are critically important in making sure that fingerprint examinations are done correctly and result in reliable opinions.

problems with analyses. Rather, the memos deal almost exclusively with administrative matters (such as inventorying print evidence and uploading information into LPU computer systems), as this list of every LPU “procedure” memo establishes:

<u>Memo</u>	<u>Type</u>	<u>Description</u>
4 Jan 2007	Administrative	Using E-track system, sealing evidence with tape
4 Jan 2008	Administrative	Putting CB#s and Inventory #s on reports
24 Jan 2008	Administrative	Don't use AFIS when case is already closed
27 Feb 2008	Administrative	Run prints in CPD database first, then ISP database
8 Sept 2008	Administrative	When CPD can accept latents from other agencies
18 Nov 2008	Administrative	Retrieval of digital latents from computer system
28 Dec 2008	Administrative	Use of new identifying number for digital latents
12 Mar 2009	Substantive	When testimony is needed, conduct second analysis
16 Jun 2009	Administrative	Instructions on reporting use of digital latent
8 Oct 2009	Administrative	Using eTrack system to send evidence to Forensic Services
14 Jul 2010	Administrative	Paperwork necessary prior to examination of latent
9 Aug 2010	Administrative	Using the CLEAR system to notify of suitable latents
16 Aug 2010	Administrative	Procedure for incorrect RD numbers on latent evidence
16 Aug 2010	Administrative	Using CLEAR to track requests for analysis
25 Jan 2012	Administrative	Order of analysis in property crime cases
1 Feb 2012	Administrative	Number/order of comparisons in multiple-latent cases
27 Feb 2012	Administrative	Wording regarding cases with open latents
16 Aug 2012	Administrative	How to inventory print evidence in computer system
20 Aug 2012	Administrative	Documenting IR numbers and SID numbers
12 Oct 2015	Administrative	Providing discovery to defense attorneys
4 Dec 2015	Administrative	Providing discovery to defense attorneys
No date	Administrative	User guide for automated report system

Confirming that this collection of administrative memos above does not constitute a procedure manual in any meaningful sense, a fingerprint examiner with the LPU (Officer Thurston Daniels) has admitted in sworn testimony that LPU examiners follow no substantive procedures when conducting fingerprint examinations:

Q: But, importantly, in these memos that serve as, I guess, what your unit calls procedure, you don't rely on these memos to tell you anything about how to conduct ACE-V, right?

A: Right.

Q: Okay. And you don't rely on these memos to tell you what characteristics you should be looking for a possible source of a latent, right?

A: That's correct.

Q: And the memos don't include any standard whatsoever for when you can say that a print has been identified, right?

A: That's correct.

Q: And they don't give you any guidance on how verification is supposed to be conducted?

A: No. You don't need guidance for verification.

Q: . Okay. And they don't mention what to do if you have an opinion that's different from a colleague, right?

A: No.

Q: And just so we're clear, these memos you've been talking about, these are the only written directives that your unit keeps whatsoever?

A: As far as I know. (Attachment H, p. 134).

In addition to Officer Daniels' admissions, three leading fingerprint experts have reviewed the LPU memos and conclude that they are substandard in every way. Glenn Langenburg⁷ reviewed the LPU memos and concludes that these memos "do not contain any

⁷ Glenn Langenburg has a Masters in Analytical Chemistry, a Ph.D in Forensic Science, and his Ph.D thesis evaluated best practices for conducting fingerprint examinations pursuant to the ACE-V method. He has been a practicing

procedures and indications of how the CPD LPU conducts fingerprint examinations.” (Attachment J). Langenburg notes that maintaining adequate written protocols is one of the three fundamental requirements of any forensic lab, and further notes that lack of written protocols at the LPU is “*terribly surprising*” given that “*all of this information and industry accepted examples of SOPs are readily available for free on the internet.*” (Attachment J). In addition to Langenburg, Cedric Neumann⁸ reviewed the same LPU memos, and concludes that “*it is impossible that this collection of documents could guarantee any form of scientific rigor in the examinations performed by the latent print examiners [at CPD].*” (Attachment L). Neumann explains that none of the memos address the scientific elements of fingerprint examinations, and further explains that “*none of the documents attempts to describe, even in vague terms, the process that latent print examiners in the Chicago PD Latent Print Unit need to follow to examine latent prints and reach conclusions.*” Because of these flaws and others in the CPD memos, Neumann concludes that the collection of memos “*does not ensure that all examiners examine fingerprints in a transparent, reproducible, and reliable manner.*” Finally, fingerprint

fingerprint examiner for 17 years, testifying frequently for the prosecution. He has been an appointed/elected member of many national fingerprint bodies, including SWGFAST, the NIJ Human Factors Working Group, and the IAI Standardization Committee (winning the Distinguished Member Award in 2007). He has published more than 20 articles in the field of forensic fingerprint comparison, including one study funded by the U.S. Department of Justice that involved participation of 146 fingerprint examiners from across the country, and including another study examining sources of bias in fingerprint analyses that was funded by the Midwest Forensics Resource Center and involved participation of 43 fingerprint examiners. In addition, he has given 100s of lectures and workshops on forensic fingerprint comparison to audiences around the world. By any measure, Mr. Langenburg is a recognized leader in the field of forensic fingerprint comparisons. Mr. Langenburg’s CV is provided at Attachment I.

⁸ Cedric Neumann has a PhD in forensic science (Magna Cum Laude), has directed extensive research on fingerprint evidence funded by the U.S. Department of Justice, has been an editor of two of the most important professional journals for the forensic fingerprint community (Journal of Forensic Identification and Forensic Science International), is a past board member of the International Association for Identification (the leading professional association for fingerprint examiners in the U.S.), was a contributor to the Human Factors Working Group Report of 2012, was a member of SWGFAST (the leading organization for setting standards for best practices in the forensic fingerprint community), is a former forensic scientist for the Forensic Science Service in England (the government funded national forensic laboratory) and a former visiting scientist with the U.S. Secret Service, and has published extensively in peer-reviewed forensic journals on the topic of forensic fingerprint comparison. Mr. Neumann’s CV is provided at Attachment K.

expert David Stoney⁹ reviewed these same CPD memos and reaches a similar conclusion- LPU does not “*maintain SOPs that define the latent print examination procedures that are used.*” (Attachment N).

Due to the lack of written protocols alone, this Court should exclude the results of fingerprint examinations by LPU. There is no more basic requirement in forensic science than operation pursuant to generally accepted protocols. Without them, there is no assurance that examiners are properly applying generally accepted methods, no assurance that quality problems are being identified and addressed, and no assurance of valid and reliable results. This Court should exclude the opinion of the LPU examiner in this case, and in all cases, until such time as the LPU complies with basic industry standards and adopts adequate operating procedures.

⁹ David Stoney has a PhD in Forensic Science, with Bachelor of Science Degrees in Chemistry and Criminalistics. He is the Chief Scientist at Stoney Forensics. He has been an editor of several of the most important peer-review forensic journals (Journal of Forensic Sciences, Journal of Forensic Identification, The Microscope). He is the former Director of the Forensic Sciences Program at the University of Illinois-Chicago. He is a grant-funded forensic science researcher. He has published many articles in peer-reviewed journals about forensic fingerprint comparison. He was a contributor to the Human Factors Report, as well as a reviewer of the NAS Report. Mr. Stoney's CV is provided at Attachment M.

III. IN VIOLATION OF PROFESSIONAL NORMS, THE LPU DOES NOT MAINTAIN A QUALITY ASSURANCE PLAN, GIVING THE LPU NO WAY TO DETECT AND CORRECT FLAWED EXAMINATIONS AND ERRONEOUS FORENSIC CONCLUSIONS.

Operating pursuant to a written Quality Assurance (QA) plan is a fundamental requirement of fingerprint labs. According to the U.S. Department of Justice, the purpose of a QA plan *"is to ensure that all examiners meet the quality standards set by the discipline and by the individual laboratory."*¹⁰ According to SWGFAST¹¹ guidelines, a QA program is necessary for every fingerprint lab so that each lab can evaluate its practices *"to ensure standards of quality are being met."*¹² For these reasons, SWGFAST states that a written QA plan *"shall be established for organizations conducting friction ridge examinations."*¹³ As Glenn Langenburg states, a meaningful QA program is one of three *"fundamental cornerstones of measuring competency and performance,"* and further states that any laboratory operating without a QA program *"cannot objectively demonstrate that their examiners are competent in fingerprint examinations."* (Attachment J). Similar to the problems described in the preceding section with substandard protocols, the failure of crime labs to maintain adequate QA programs has been a common finding in labs that suffer systemic failure.¹⁴

An adequate QA program includes *"those planned and systematic actions necessary to provide sufficient confidence that a laboratory's product or service will satisfy given*

¹⁰ U.S. Department of Justice, "The Fingerprint Sourcebook," p. 12-3 (2012).

¹¹ The Scientific Working Group on Friction Ridge Analysis, Study, and Technology publishes guidelines and standards for fingerprint analysis in the U.S. First organized by the FBI, the SWGFAST membership includes 40 experts representing every type of law enforcement fingerprint lab, including the FBI, the U.S. Army Crime Lab, various state crime labs, and various fingerprint units of local law enforcement.
<http://www.swgfast.org/Members.htm>.

¹² SWGFAST Document #7, "Standard for a Quality Assurance Program in Friction Ridge Examinations," (2012).

¹³ SWGFAST Document #7, "Standard for a Quality Assurance Program in Friction Ridge Examinations," (2012).

¹⁴ The Massachusetts crime lab was cited for a failed QA program that was *"insufficient to detect any malfeasance or issues related to chemist errors in drug analysis."* (Attachment C, p. 47). Among the many systemic failures of the Detroit Police Crime Lab were the failures to conduct technical reviews, administrative reviews, and testimony reviews. (Attachment D, p. 2S-27).

requirements for quality.”¹⁵ Components of an adequate QA program for a fingerprint lab include the following written documents: a code of ethics, a training program, procedures for conflict resolution, procedures for testimony review, and procedures for corrective actions.¹⁶

The need for a comprehensive QA program would not be so critical if opinions of fingerprint examiners were objective, consistent from one examiner to the next, and error-free. However, the opposite is true- the opinions of fingerprint examiners are subjective and vary a lot from examiner to examiner. Examiners routinely disagree on the basic question of whether a fingerprint is suitable for comparison¹⁷:

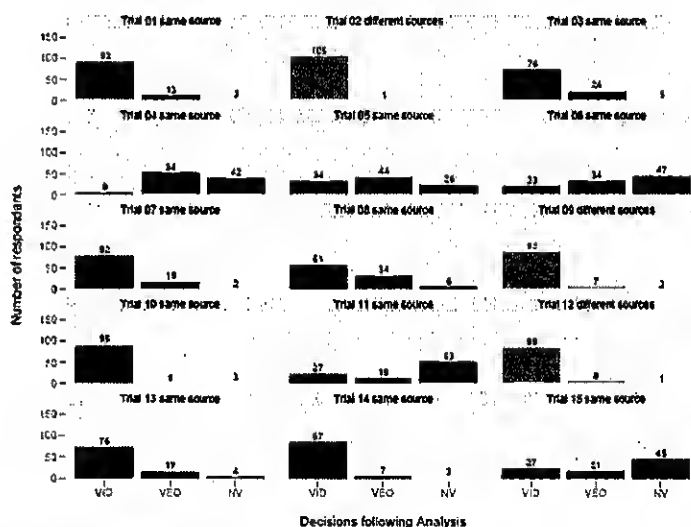


Figure 24: Reported conclusions following the Analysis phase for each trial for examiners using Approach #2. Outcomes are VID (value for identification) VEO (value for exclusion only) and NV (no value). The results for same source comparisons are presented in aqua; the results for different sources comparisons are presented in red.

¹⁵ SWGFAST Document #7, “Standard for a Quality Assurance Program in Friction Ridge Examinations,” (2012); U.S. Department of Justice, “The Fingerprint Sourcebook,” p. 12-3 (2012).

¹⁶ Id. at 12-5 to 12-8.

¹⁷ Neumann et al., “Improving the Understanding and the Reliability of the Concept of ‘Sufficiency’ in Friction Ridge Examination,” U.S. Department of Justice, p. S6 (2013)(For example, forty five fingerprint examiners concluded that latent print #11 was suitable for comparison, while S3 examiners claimed that the same latent print was not suitable for comparison).

Examiners disagree on how many comparison features appear in a latent print¹⁸:

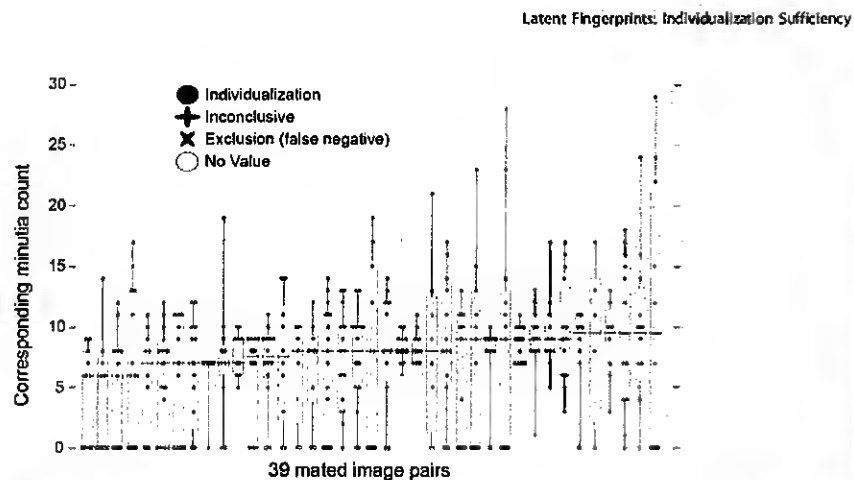


Figure 6. Detail of Figure 5 for the 39 Image pairs that had median corresponding minutia counts between 6 and 9.5, with the addition of box plots showing interquartile range, minima, and maxima. (n = 452 responses; 6 to 16 responses per image pair.) doi:10.1371/journal.pone.0110179.g006

¹⁸ Ulery, et al., "Measuring What Latent Fingerprint Examiners Consider Sufficient Information for Individualization Determinations," *PLoS ONE*, 9(11), 2014 (For same prints in this study, some examiners identified as few as 5 features while other examiners analyzing the same print identified 20 or more features, leading the authors of the study to state, "Although we expected variability in minutia counts, we did not expect the counts to vary as much as they did, especially in those critical cases in which examiners do not agree on their determinations and precise counting might be pivotal. The differences in minutia count understate the variability because annotations not only differ substantially in total minutia counts, but also in which specific minutiae were selected.").

Finally, with regard to the ultimate question of whether a print can be associated to a suspect, comprehensive studies demonstrate the same trend- examiners often disagreeing¹⁹:

Table 4. Repeatability and reproducibility of individualization and exclusion decisions, by examiner assessment of difficulty.

	Individualization		Exclusion	
	Repeated	Reproduced	Repeated	Reproduced
Obvious/Easy/Medium	92%	85%	88%	77%
Difficult/Very Difficult	69%	55%	70%	50%

doi:10.1371/journal.pone.0032800.t004

All of this modern research in the field tells the same tale- fingerprint comparisons are subjective individual assessments that differ significantly from examiner to examiner.

Given the subjectivity of the discipline, it should come as no surprise that errors in fingerprint cases²⁰ are common. The most reliable error rate data in the discipline comes from two large-scale error rate studies published in the last several years. One such study, conducted by the Miami-Dade Police Department, generated a false-positive rate 1 in 24 cases, and possibly as high as 1 in 18 cases.²¹ A second study, conducted by the FBI, generated a false positive rate of 1 in 604 case, and possibly as high as 1 in 306 cases.²² False exclusion errors (examiners concluding that a print did not come from a suspect when it in fact did come from the suspect)

¹⁹ Ulery, et al., "Repeatability and Reproducibility of Decisions By Latent Print Examiners," Proceedings of the National Academy of Sciences, p. 8 (2012)(Examiners analyzing the same latent print evidence disagree about 50% of the time on final opinions in more difficult cases, and disagree about 20% of the time on even the easiest cases).

²⁰ Although there are many different types of errors that fingerprint examiners can make, one of the most troubling is the false positive- claiming that a latent print can be associated to a suspect when the suspect is in fact not the source of the latent print.

²¹ President's Council of Advisors on Science and Technology, "Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods," September, 2016, p. 9S.

²² Id. at 94.

were even more common than false positive errors. Based on this data, it is reasonable to expect errors in forensic fingerprint cases on a routine basis. And while there is no way to determine how many defendants in criminal cases have been convicted based on erroneous fingerprint claims, there are many reported instances of this phenomenon.²³

Looking at the big picture, the data described above tells the tale of the need for a robust QA system- a program designed to referee differences of opinions, detect errors, and remediate poor practices that lead to errors. Despite this reality, the LPU has no QA program to ensure the reliability of its forensic analyses. First, the collection of LPU memos listed above does not contain any of the basic elements of a QA program. Second, the undersigned attorneys sought to

²³ Higgins, "Fingerprint Evidence Put on Trial," Chi. Trib., Feb., 2S, 2002 (where a fingerprint examiner from the Chicago Police Department erroneously matched a critical latent print in the Brown's Chicken killings to an innocent person); Jofre, "Falsely Fingered," Guardian, July 9, 2001 (where 4 different law enforcement fingerprint examiners made two different false matches in one case, with a detective being falsely implicated by the 4 examiners who found 16 or more points of similarity between the latent print and the detective); Scheier, "New Trial Sought in U. Darby Slaying," Phila. Inquirer, Aug. 16, 1999 (where the defendant was wrongfully convicted of murder based on a fingerprint misidentification by 3 different fingerprint examiners); Vigh, "Evidence Bungled in Slaying," Salt Lake Trib., Feb. 19, 2003 (where a man was falsely implicated in an attempt murder case when a fingerprint examiner erroneously matched to bloody prints from the crime scene to the defendant); Michael Coit, "Santan Rosa Woman Identified as Vegas Slaying Victim Turns up Alive," Santa Rosa Press Democratic Sept. 13, 2002 (documenting a case where a female crime victim was misidentified through an erroneous fingerprint match, when the latent fingerprint was attributed to a living woman); Commonwealth v. Cowans, 756 N.E.2d 622 (Mass. App. Ct. 2001) (where the defendant was erroneously matched to a latent fingerprint from the scene, only to be exonerated by DNA thereafter); State v. Caldwell, 322 N.W.2d 574 (Minn. 1982) (where 3 different fingerprint examiners misidentified a fingerprint with 11 points of similarity to the defendant); Cooper v. Dupnik, 963 F.2d 1220 (9th Cir. 1992); Starrs, "More Saltimbancos on the Loose? Fingerprint Experts Caught In a World of Error," 12 Sci. Sleuthing Newsl. 1 (1988) (where 2 different print examiners misidentified two latent fingerprints with 11-12 points of similarity to the defendant in a rape case) (where a review of work by a fingerprint examiner in North Carolina found 4 erroneous identifications); Grey, "Yard in Fingerprint Blunder," London Sunday Times, Apr. 6, 1997 (where a suspect was wrongfully incarcerated for a rape of a child based on a fingerprint misidentification) (also documents another erroneous fingerprint match in a burglary case from 1987, when 3 separate examiners falsely attributed two latent prints from a burglary scene to the suspect); Noble and Avercuch, "Never Plead Guilty: The Story of Jake Ehrlich," 29S, 1955 (where a defendant was convicted based on a 14-point fingerprint misidentification); McRoberts et al., "Forensic Under the Microscope," Chicago Tribune, October 17, 2004; Cole, "More Than Zero: Accounting for Error in Latent Fingerprint Identification, J of Criminal Law & Criminology, 9S, p. 985-986, 997-998 (documenting the existence of numerous unreported cases of fingerprint error); Saltzman & MacDaniel, "Man Freed in 1997 Shooting of Officer: Judge Ruling After Fingerprint Revelation," Boston Globe, Janu. 24, 2004, at A1 (where DNA exonerated a man after he was convicted by erroneous fingerprint identification by multiple examiners); www.ncids.com/forensic/fingerprints/101126_WA_v_Sims.pdf (Appendix H) (documenting 36 cases of erroneous fingerprint opinions, including 30 cases of false identification, 5 cases of false exclusion, and 1 case of erroneously failing to exclude).

obtain through subpoena any documentation that represents the LPU QA program, and the LPU responded by admitting that they have no such program (Attachment O):

Subpoena Item:

1. Regarding RD# HW579017, copies of any and all documents that constitute the Quality Assurance Plan for the Chicago Police Department Fingerprint Unit, including but not limited to: copies of any written QA plans and blank copies of any forms used by examiners to record and report QA issues such as differences of opinions between examiners:

no responsive documents.

Third, LPU examiners admit to the complete lack of a QA program. For instance, Officer Thurston Daniels admitted this to this failure in his flippant testimony below:

Q: Okay. And in your unit, for all the analysts that are doing fingerprint examination, there's no error management system that's in place in your unit, right?

A: Other than the Public Defender's Office - -

Q: I appreciate the compliment.

A: - - checking my work.

Q: Your unit has nothing that you know of in place to deal with what would happen if an error occurred?

A: No, not from the Chicago Police Department.

Q: Okay. And pertaining to your work personally, Mr. Daniels, there's no documentation of you having ever disagreed with the opinion of another examiner from your unit?

A: No.

Q: Okay. And there's no recording of any discrepancy in your casework?

A: No.

* * *

Q: Okay. And [LPU memos] don't mention what to do if you have an opinion that's different from a colleague, right?

A: No.

Q: And just so we're clear, these memos you've been talking about, these are the only written directives that your unit keeps whatsoever?

A: As far as I know. (Attachment H, p. 130-134).

Officer Iwona Dabrowska admitted the same, asserting in a pre-trial interview that the LPU *"has no quality assurance measures for documenting and dealing with disagreements."* (Attachment P). Finally, Officer Malone (the LPU examiner in this case) has likewise admitted to a complete lack of a QA program:

Q: You don't have any written error management system if something went wrong, right, Officer Malone?

A: That is correct.

Q: There is no quality assurance system, right?

A: Correct. (Attachment Q, p. 27).

The complete failure of the LPU to adopt industry-required QA procedures is disturbing, and has resulted in the failure to detect erroneous opinions by LPU examiners. As detailed in pre-trial interviews, some LPU examiners (including Officer Malone) make the absurd claim that there are never differences of opinions in casework between two LPU examiners.²⁴ These claims of uniform opinions across an entire fingerprint lab over years of operation are scientifically indefensible given the studies above showing that examiners disagree about 50% of the time on difficult cases and even 20% of the time on easy cases. Therefore, the failure of the LPU to detect and report any differences of opinion across 1000s of cases is only possible if the LPU turns a total blind eye to quality issues.

²⁴ Officer Michael Malone asserts that no verifier has disagreed with his opinions in the thousands of cases he has handled over the past 5 years. (Attachment O)(Attachment R). Officer Iwona Dabrowska asserts that no verifier has disagreed with her opinions in case work in 5 years. (Attachment P). Officer Cynthia Seavers asserts that no verifier has disagreed with her opinions in case work in 8 years. (Attachment 5).

When coupled with the complete lack of adequate written procedures, the absence of a QA program should be fatal to the admissibility of the fingerprint evidence in this case. The lack of written protocols means that examiners have no guidance in how to conduct a reliable fingerprint examination, which means that errors are far more likely. The lack of a QA program means that the LPU has no system designed to catch these errors, and to remedy recurring problems with examiners. Taken together, these two fundamental failures mean that the LPU is missing the most important attributes of a crime lab. In this context, this Court can have no confidence in the reliability of the fingerprint opinions being reported by the LPU.

IV. IN VIOLATION OF PROFESSIONAL NORMS, THE LPU DOES NOT MAINTAIN A WRITTEN TRAINING PROGRAM OF ANY KIND, GIVING THE LPU NO CAPACITY TO ENSURE THAT ITS EXAMINERS UNDERSTAND THE MANY FUNDAMENTAL CHANGES IN THE DISCIPLINE.

According to a panel of leading experts²⁵ in the field, fingerprint examiners should receive ongoing professional training, not only on substantive examination issues, but also on ethics, cognitive bias, and proper scientific research methods.²⁶ According to the National Commission on Forensic Science²⁷, fingerprint examiners have an ethical obligation to “*commit to continuous learning in relevant forensic disciplines and stay abreast of new findings,*

²⁵ The Human Factors Working Group was funded by the U.S. Department of Justice, and consisted of fingerprint examiners from every level of law enforcement, including fingerprint experts from the FBI, the Maryland State Police, the U.S. Secret Service, the Massachusetts State Police, the Las Vegas Police Crime Lab, the Indiana State Police Crime Lab, and the Los Angeles County Sheriff Crime Lab. In 2012, the Working Group issued a lengthy report, reviewing practices and problems with the forensic fingerprint discipline. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2050067

²⁶ Working Group on Human Factors in Latent Print Analysis, “Latent Print Examination and Human Factors: Improving the Practice Through a Systems Approach,” National Institute of Justice, p. 168 (2012).

²⁷ The NCFS is a collaboration between the U.S. Department of Justice and the National Institute of Standards and Technology. The stated mission of the NCFS is to provide recommendations concerning “*notional methods and strategies for [] strengthening the validity and reliability of forensic science. . .*” The NCFS Board includes representatives from law enforcement forensic agencies from around the country, including but not limited to: the founder of the Armed Forces DNA Identification Lab, a chemist formerly with the U.S. Customs Lab, a member of the FBI DNA Advisory Board, the Director of the Palm Beach Sheriff’s Office Crime Lab, a forensic chemist with ATF, the Director of the Virginia State Crime Lab, and a forensic chemist with the FBI. The NCFS is co-chaired by the Deputy U.S. Attorney General. <https://www.justice.gov/ncfs>.

equipment, and techniques." (Attachment T, p. 3). For a fingerprint lab to obtain and maintain accreditation, it must have written procedures "*for identifying the training needs and providing training of personnel.*" (Attachment B, p. 20). Moreover, the lack of such a comprehensive professional development plan not only precludes accreditation, but also "*can lead to perpetuation of improper or inappropriate methods.*"²⁸ In addition, a lack of training can lead fingerprint examiners to mislead the trier of fact by overstating the probative value of fingerprint associations.

A training program that meets industry standards must be written, and should contain modules, listing the objectives of the modules and the reading materials required to achieve the stated objectives. Examiner progress through the training modules must be documented, and examiners must pass a competency test at the end of the last training module. (Attachment J). Separately, once an examiner successfully completes this initial training, the examiner must attend at least 80 hours of continuing training in a 5-year cycle. This retraining is critical because the field of forensic fingerprint comparison is changing rapidly- "*more critical research and professional issues have occurred in the last 15 years than in the entire history of the field.*" (Attachment J). Only through structured retraining can a fingerprint examiner maintain competency.

As with every other fundamental requirement of a properly functioning crime lab, the LPU fails this one. This should come as no surprise to anyone who is familiar with the U.S. Department of Justice report identifying the many systemic problems with the CPD.²⁹ With

²⁸ Working Group on Human Factors in Latent Print Analysis, "Latent Print Examination and Human Factors: Improving the Practice Through a Systems Approach," National Institute of Justice, p. 165 (2012).

²⁹ As part of a broad investigation into unlawful CPD practices, the U.S. Department of Justice conducted a year-long investigation, including interviews of 340 members of the CPD, meetings with 90 community organizations,

regard to training and retraining of CPD officers in general, the DOJ determined that CPD practices are deficient:

*"Our investigation revealed engrained deficiencies in the systems CPD uses to provide officers with supervision and training. CPD's inattention to training needs, including a longstanding failure to invest in resources, facilities, staffing, and planning required to train a department of approximately 12,000 members, leaves officers underprepared to police effectively and lawfully. . .CPD and the City of Chicago have not provided such training to CPD officers for many years, to the disservice not only of those officers but to the public they serve."*³⁰

While the DOJ did not separately report on forensic training, the LPU response to subpoenas for their training documentation tells the whole story. In response to a subpoena requesting the production of written training materials, the LPU responded by admitting that they have "*no responsive documents.*" (Attachment U).

The very foreseeable consequence of this failure is that LPU examiners are shockingly unfamiliar with basic and important concepts in their own field. In particular, Officer Malone (the fingerprint examiner in this case) is unfamiliar with basic and important concepts in his own discipline:

and a review of thousands of pages of CPD documentation. This investigation resulted in a 164-page report entitled, "Investigation of the Chicago Police Department." <https://www.justice.gov/opa/file/925846/download>.

³⁰ *Id.* at 93-94

- It is widely acknowledged in the forensic fingerprint community that fingerprint opinions derived from the ACE-V method are subjective.³¹ Every important large-scale study in the field clearly establishes subjectivity.³² Yet, Officer Malone denies this truism. (Attachment Q, p. 53).
- Although fingerprint examiners testified in the past to 100% certainty in their conclusions, this was never scientifically defensible and examiners have been told to stop providing this improper testimony.³³ Nonetheless, Officer Malone persists in providing misleading testimony on this concept, recently testifying under oath that *"If an identification is made, I am – I'm speaking for myself – 100 percent certain that I have made an identification. . .when I make an identification, I am 100 percent certain that it is an identification."* (Attachment Q, p. 51-52).
- It has never been proven in any meaningful or systematic way that every fingerprint of every person in the world is unique.³⁴ Yet, Officer Malone testifies without scientific justification that fingerprints are unique. (Attachment Q, p. 31)
- Modern fingerprint examiners recognize the uncertainty inherent in fingerprint comparisons, in part due to phenomena such as connective ambiguity³⁵ (the fact that examiners cannot always distinguish between important fingerprint features such as

³¹ The NAS Committee reported in 2009 that *"the outcome of a friction ridge analysis is not necessarily repeatable from examiner to examiner. . . This subjectivity is intrinsic to friction ridge analysis."* The NAS Committee further reported that the final opinion of an examiner regarding whether a fingerprint came from a certain person *"is a subjective assessment."* National Academy of Sciences, "Strengthening Forensic Science In the United States: A Path Forward," National Academies Press, 2009, p. 184; See also, Working Group on Human Factors in Latent Print Analysis, "Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach," National Institute of Justice, 2012 (*"At every step in the ACE-V process, human factors can affect the outcome. Latent print examiners rely heavily on their training and experience to make the required judgments. Subjectivity is an inextricable part of the process."*).

³² See, Ulery, et al., "Repeatability and Reproducibility of Decisions By Latent Print Examiners," Proceedings of the National Academy of Sciences, 2012.

³³ According to the Human Factors Working Group, *"Because empirical evidence and statistical reasoning do not support a source attribution to the exclusion of all other individuals in the world, latent print examiners should not report or testify, directly or by implication, to a source attribution to the exclusion of all others in the world."* Working Group on Human Factors In Latent Print Analysis, "Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach," National Institute of Justice, 2012, p. 72. Likewise, the U.S. Army Crime Lab has rejected claims of source attribution, stating *"several well respected and authoritative scientific committees and organizations have recommended forensic science laboratories not report or testify, directly or by implication, to a source attribution to the exclusion of all others in the world or to assert 100% certainty and state conclusions in absolute terms when dealing with population issues."* (Attachment V).

³⁴ Page et al., "Uniqueness in the Forensic Identification Sciences- Fact or Fiction," Forensic Science International (2011)(stating that *"the concept of uniqueness has more the qualities of a cultural meme than a scientific fact. . . most of the studies attempting to prove the uniqueness of a particular forensic feature suffer flaws that render their conclusion questionable."*); See also, Knapton, "Why Your Fingerprints May Not Be Unique," The Telegraph, 2014 (*"Nobody has yet proved that fingerprints are unique and families can share elements of the same pattern."*); See also, Working Group on Human Factors in Latent Print Analysis, "Latent Print Examination and Human Factors: Improving the Practice Through a Systems Approach," National Institute of Justice, p. 165 (2012)(stating that *"uniqueness does not guarantee that prints from two different people are always sufficiently different that they cannot be confused, or that two impressions made by the same finger will also be sufficiently similar to be discerned as coming from the same source."*).

³⁵ <http://www.fprints.nwleap.net/c.htm> (defining connective ambiguity as *"minutia that cannot be specifically determined due to distortion."*).

bifurcations and ridge endings), close non-matches³⁶ (the fact that fingerprints from different people can share the same constellation of features raising the possibility of a false fingerprint association), and error rates³⁷ (the two scientifically valid error rate studies in the field established upper bound false positive rates of 1 in 306 cases and 1 in 18 cases respectively). Officer Malone has testified that he is unaware of each of these concepts. (Attachment Q, p. 18, 60-61)(Attachment R).

- The Journal of Forensic Science is the “*internationally recognized scientific journal*” for the “*world’s most prestigious forensic science organization*”- the American Academy of Forensic Sciences. The AAFS has 7000 members, representing all 50 states and 70 other countries.³⁸ The Journal routinely publishes articles describing advancements and reforms in the field of forensic fingerprint comparisons.³⁹ Officer Malone has never heard of it. (Attachment Q, p. 25).

In terms of systemic failure, the lack of training and understanding does not stop with Officer Malone, but includes his co-workers in the LPU:

³⁶ See, Office of Inspector General, “A Review of the FBI’s Handling of the Brandon Mayfield Case,” U.S. Department of Justice, 2006, p. 137 (where the OIG determined that one factor contributing to the false identification was the fact that AFIS search is designed to identify close non-matches, and further finding that the “*likelihood of encountering a misleadingly close non-match through an AFIS search is therefore greater than in a comparison of a latent print with the known prints of a suspect whose connection to a case was developed through an investigation.*”); See also, Working Group on Human Factors in Latent Print Analysis, “Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach,” National Institute of Justice, 2012, p. 63 (“*When comparing latent prints to exemplars generated through AFIS searches, examiners must recognize the possibility and dangers of incidental similarity. Adjustments such as a higher decision threshold, stricter tolerances for differences in appearance, and explicit feature weighing need to be considered. Modifying quality assurance practices for this scenario also should be considered.*”).

³⁷ Office of the President’s Council of Advisors on Science and Technology, “Forensic Science in Criminal Cases: Ensuring Scientific Validity of Feature-Comparison Methods,” p. 149 (2016).

³⁸ <https://www.aafs.org/about-aafs/#aafs-history>.

³⁹ Langenburg et al., “Testing For Potential Contextual Bias Effects During the Verification Stage of the ACE-V Methodology When Conducting Fingerprint Comparisons,” JFS (2009); Speckels, Can ACE-V Be Validated,” JFS (2011); Dror and Rosenthal, “Meta-Analytically Quantifying the Reliability and Biasability of Forensic Experts,” JFS (2008); Langenburg, “Distortion in Fingerprints: A Statistical Investigation Using Shape Measurement Tools,” JFS (2014); de Jongh and Rodriguez, “Performance Evaluation of Automated Fingerprint Identification Systems For Specific Conditions Observed in Casework Using Simulated Fingermarks,” JFS (2012); Christiansen et al., “Error and Its Meaning in Forensic Science,” JFS (2014);

Officer Dabrowska: (Attachments A, P).

- Does not know the meaning of blind analysis.⁴⁰
- Has no understanding of a “close non-match” and the problems associated with close non-matches in AFIS cases.⁴¹
- Believes that there is a 0% chance that she makes errors.⁴²
- Does not know what contextual bias means and does not recognize cognitive bias as a potential source of error.⁴³
- Claims that all fingerprints are proven to be unique.⁴⁴

⁴⁰ The FBI has been using blind analysis of the latent fingerprint for years: “According to LPU Unit Chief Meagher, the analysis should be performed on the latent print before consideration of any available known prints, in order to ‘limit or try to restrict any bias in terms of what appears in the known exemplar.’ In other words, analysis of the latent is performed prior to the examination of the relevant exemplar, in order to avoid having the known print suggest features in the latent print to the examiner.” Office of Inspector General, “A Review of the FBI’s Handling of the Brandon Mayfield Case,” U.S. Department of Justice, p. 105-106 (2006).

⁴¹ Office of Inspector General, “A Review of the FBI’s Handling of the Brandon Mayfield Case,” U.S. Department of Justice, 2006, p. 137 (where the OIG determined that one factor contributing to the false identification was the fact that an AFIS search is designed to identify close non-matches, and further finding that the “likelihood of encountering a misleadingly close non-match through an AFIS search is therefore greater than in a comparison of a latent print with the known prints of a suspect whose connection to a case was developed through an investigation.”); See also, Dror and Mnookin, “The Use of Technology in Human Expert Domains: Challenges and Risks Arising From the Use of Automated Fingerprint Identification Systems in Forensic Science,” *Law, Probability and Risk* Vol. 9, 2010, p. 55 (“the chances of finding by pure coincidence a look-alike print, a print originating from another person but that is nonetheless extremely similar to the latent print, is much higher than when comparing the latent print to just a few dozens, hundreds or even thousands of prints prior to the introduction of AFIS.”); See also, Working Group on Human Factors in Latent Print Analysis, “Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach,” National Institute of Justice, 2012, p. 63 (“When comparing latent prints to exemplars generated through AFIS searches, examiners must recognize the possibility and dangers of incidental similarity. Adjustments such as a higher decision threshold, stricter tolerances for differences in appearance, and explicit feature weighing need to be considered. Modifying quality assurance practices for this scenario also should be considered.”).

⁴² According to an article published in the leading forensic science journal, “there is always a non-zero probability of error, and to claim an error rate of zero is inherently unscientific. . . We strongly recommend that educational programs in forensic sciences as well as training programs for practitioners address error and error analysis.” Christiansen et al., “Error and Its Meaning in Forensic Science,” *Journal of Forensic Science*, Vol. 59, p. 123-126 (2014); See also, Working Group on Human Factors in Latent Print Analysis, “Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach,” National Institute of Justice, 2012, p. 127. (stating that, “[a] testifying expert should be familiar with the literature related to error rates. . . The expert should not state that errors are inherently impossible or that a method inherently has a zero error rate.”).

⁴³ According to the FBI Crime Lab, “examiners must be aware of . . . contextual bias and confirmation bias,” and “continuing education can keep these topics fresh in an examiner’s mind.” <https://archives.fbi.gov/archives/about-us/lab/forensic-science-communications/fsc/act2009/review>.

⁴⁴ See footnote #34.

Officer Joseph Calvo: (Attachment R)

- Does not know that statements of 100% certainty are not permitted in the field.⁴⁵
- Cannot discuss the concept of close non-matches.⁴⁶
- Cannot discuss fundamental error rate studies in the field and admits that he is not “an expert in error rates.”⁴⁷
- Cannot discuss the validity research in his own field and admits that he is not “an expert in reproducibility studies.”⁴⁸
- Denies that fingerprint examinations lead to subjective opinions of individual examiners.⁴⁹

Officer Seavers: (Attachment S).

- Could not define SWGFAST.⁵⁰
- Unfamiliar with the research in the field discussing the increased chances of error in AFIS cases due to close non-matches in large databases.⁵¹
- Does not know that know that statements of 100% certainty are not permitted in the field.⁵²
- Cannot define the concept of incidental similarity.⁵³

⁴⁵ See footnote #33.

⁴⁶ See footnote #36.

⁴⁷ Working Group on Human Factors in Latent Print Analysis, “Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach,” National Institute of Justice, 2012, p. 127 (stating that “A testifying expert should be familiar with the literature related to error rates”); See also, President’s Council of Advisors on Science and Technology, “Forensic Science In Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods,” p. 53 (2016)(stating that it is essential to know the error rate of a forensic method “[b]ecause without appropriate empirical measurement of a method’s accuracy, the fact that two samples in a particular case show similar features has no probative value- and, as noted above, it may have considerable prejudicial impact because juries will likely incorrectly attach meaning to the observation” and also stating that the field of forensic fingerprint comparison has only two valid error rate studies [the FBI Black Box Study and the Miami-Dade Study] establishing an upper bound false positive rate of 1 in 306 cases and 1 in 18 cases respectively).

⁴⁸ See, Ulery, et al., “Repeatability and Reproducibility of Decisions By Latent Print Examiners,” Proceedings of the National Academy of Sciences, 2012 (the most important and comprehensive large-scale study assessing the reproducibility and repeatability of opinions by fingerprint examiners).

⁴⁹ See footnote #31, 32.

⁵⁰ The Scientific Working Group on Friction Ridge Analysis, Study, and Technology publishes guidelines and standards for fingerprint analysis in the U.S. First organized by the FBI, the SWGFAST membership includes 40 experts representing every type of law enforcement fingerprint lab, including the FBI, the U.S. Army Crime Lab, various state crime labs, and various fingerprint units of local law enforcement. For several decades, it has been recognized by examiners in the field as the most authoritative source of national standards and guidelines for forensic fingerprint comparison. <http://www.swgfast.org/Members.htm>.

⁵¹ See footnote # 36.

⁵² See footnote # 33.

⁵³ Working Group on Human Factors in Latent Print Analysis, “Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach,” National Institute of Justice, 2012 (“When comparing latent prints to exemplars generated through AFIS searches, examiners must recognize the possibility and dangers of incidental similarity.”); See also, Dror and Mnookin, “The Use of Technology in Human Expert Domains: Challenges and Risks Arising From the Use of AFIS in Forensic Science,” Law, Probability and Risk (2010)(defining incidental similarity as “highly similar, look-alike prints from different sources”).

- Could not recall if she had ever read a study validating her method of fingerprint comparison.
- Refused to answer whether fingerprint comparison opinions are subjective.
- Refused to discuss her standard for determining whether a print can be associated with a suspect.
- Refused to answer any questions about published error rates in the field.
- Refused to state whether she understood the term cognitive bias or had received any training on the topic.

Whatever ad-hoc training is made available to police officers in the LPU, it clearly is not working. As documented above, LPU examiners seek to testify to a laundry list of claims that are rejected by the field and that will overstate the probative value of fingerprint associations. LPU examiners seek to testify that fingerprint comparisons lead to objective truths even though they do not. LPU examiners seek to testify that they can identify the source of a latent print to the exclusion of all others in the world, even though the field has rejected such unsupported claims. LPU examiners seek to testify that they are 100% certain of their “match” claims, even though fundamental research in the field proves that opinions are not reproducible and false positive rates may be as high as 1 in 18 cases. Finally, LPU examiners seek to deny the scientific truth that fingerprint investigations that begin with an AFIS search are more likely to lead to false positives due to close non-matches in large AFIS databases. Given the scope of information documented in this Motion, this Court is in a better position than previous judges to assess the overall failures of the LPU training and professional development program. And given the many and fundamental failures of the LPU training program documented above, this Court should not admit fingerprint opinions of LPU examiners until such time as the LPU adopts a documented training program and establishes that its examiners are sufficiently trained.

V. IN VIOLATION OF PROFESSIONAL NORMS, THE CPD DOES NOT VALIDATE ANY OF THE FINGERPRINT PROCESSING OR ENHANCEMENT TECHNIQUES IT USES AND THEREFORE HAS NO BASIS TO ASSERT THAT THEIR TECHNIQUES ARE RELIABLE.

In order to establish reliability, forensic labs must validate all forensic examination methods prior to use in casework.⁵⁴ Validation involves a “*comprehensive performance and documentation of measurements to verify a method is reliable and fit for purpose.*”⁵⁵ Without such testing, the resulting data would be “*scientifically unacceptable.*”⁵⁶ For a forensic lab to pass basic accreditation, its methods must be validated and the validation documentation must be maintained and available.⁵⁷ (Attachment B, p. 30). Additionally, SWGFAST guidelines for fingerprint labs require that labs create and maintain “*method validation records*” as part of an acceptable quality assurance program.⁵⁸

The particular importance of method validation in the context of fingerprint cases stems from the use by fingerprint examiners of processes to alter the appearance of latent fingerprint images. Sometimes referred to as “enhancement techniques,” these methods can dramatically change the appearance of a latent print, creating apparent fingerprint ridges where none were

⁵⁴ SWGFAST, Document #7, “Standard for a Quality Assurance Program in Friction Ridge Examinations,” p. 2.

⁵⁵ Kevin Schug, “Forensics, Lawyers, and Method Validation- Surprising Knowledge Gaps,” *The Column*, Vol. 11, p. 2 (2015); See also, Forensic Science Regulator, Guidance FSR-G-201, p. 3 (2014). See also, UNODC, “Guidance for the Analytical Methodology and Calibration Equipment used for Testing of Illicit Drugs in Seized Materials and Biological Specimens, p. 9-12 (2009)(Validating the specificity of a method involves determining the extent to which the method can be subject to interference by impurities and matrices that are not the target of the method, validating the precision of a method involves establishing that the method reproduces the same or similar results each time it is used, and validating the accuracy of a method involves establishing that the results of the method are consistent with ground truth).

⁵⁶ *Id.*

⁵⁷ Method validation is required as part of ISO 17025 accreditation.

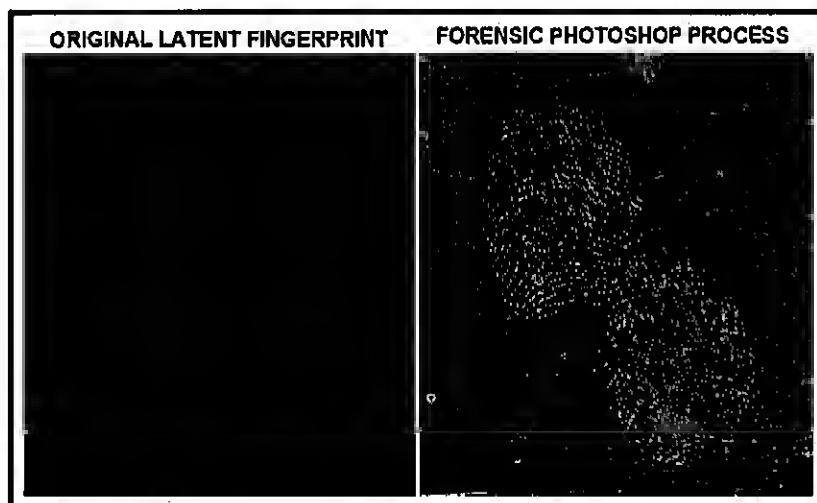
https://www.nist.gov/sites/default/files/documents/forensics/01_ValidationWebinar-Butler-Aug2014.pdf.

⁵⁸ SWGFAST, Document #7, “Standard for a Quality Assurance Program in Friction Ridge Examinations,” p. 2.

previously visible. For instance, fingerprint labs use chemicals to try to make fingerprint ridges appear where they were previously not visible⁵⁹:



In addition to altering the latent fingerprint image through physical and chemical processing, fingerprint examiners can dramatically alter the appearance of a suspected latent print image through the use of computer programs such as Photoshop⁶⁰:



⁵⁹ U.S. Department of Justice, "Fingerprint Sourcebook," p. 7-20 (showing the effects of chemical processing using the chemical reagent 1,8-Diazafluoren-9-one).

⁶⁰ Caruso, "Alternative Methods of Latent Fingerprint Enhancement and Metrics for Comparing Them," National Institute of Standards and Technology (2013).

Clearly, the use of techniques to alter the appearance of a latent fingerprint image can have dramatic effects on the quality and quantity of data available for interpretation.

The concern with the use of these alteration methods, such as Photoshop, is that they may cause “*unintended collateral damage*” by altering the appearance of the fingerprint ridges.⁶¹ This collateral damage comes in two equally troubling forms: the loss of real data from the original print and the creation of false data in the form of artifacts.⁶² With regard to the loss of real fingerprint data, experts admit that the use of Photoshop “*may inadvertently eliminate vital fine scale information, information that might exclude a suspect.*”⁶³ With regard to the creating of false data, experts in the field admit that the use of Photoshop can create “*misleading artifacts,*” leading to unreliable comparisons and questionable results.⁶⁴ One leading expert in the field has described digital enhancement in particular as “*an area of concern*” due to the fact that the processes used in digital enhancement are not always reproducible.⁶⁵ Because of the possibilities both of losing real fingerprint data and of creating false data, “*forensic service*

⁶¹ Carasso, “A Framework for Reproducible Latent Fingerprint Enhancements,” Journal of Research of the National Institute of Standards and Technology, p. 212, 214 (2014).

⁶² *Id.* at 225.

⁶³ Carasso, “Alternative Methods of Latent Fingerprint Enhancement and Metrics for Comparing Them,” National Institute of Standards and Technology (2013).

⁶⁴ Carasso, “A Framework for Reproducible Latent Fingerprint Enhancements,” Journal of Research of the National Institute of Standards and Technology, p. 212, 225 (2014)(stating that the “*overzealous application*” of Photoshop to latent prints can both eliminate significant information from the original latent print and add new artifacts to the latent print image); See also, Working Group on Human Factors in Latent Print Analysis, “Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach,” National Institute of Justice, p. 80 (2012)(stating that digital alteration of a latent image “*could create artifacts that an examiner might mistake for minutiae*”); See also, SWGIT, “Guidelines for Image Processing,” p. 2 (2010)(stating that examiners involved in image enhancement should “*use caution to avoid the introduction of artifacts that add misleading information to the image or the loss of image detail that could lead to an erroneous interpretation.*”).

⁶⁵ Carasso, “A Framework for Reproducible Latent Fingerprint Enhancements,” Journal of Research of the National Institute of Standards and Technology, p. 212 (2014); See also, Smith, “Computer Fingerprint Enhancement: The Joy of Lab Color,” Journal of Forensic Identification, Vol62, p. 464 (2011)(stating that digital alteration processes must be documented “*in enough detail that any person with similar training and experience would be able to follow the steps and produce a similar, although not necessarily mathematically exact, result.*”).

*providers should validate latent print enhancement technologies prior to use in casework.”*⁶⁶

According to SWGIT⁶⁷, labs that implement digital enhancement techniques must not only prove that the methods are valid, but must also *“implement quality assurance programs to ensure that results achieved are repeatable and valid.”*⁶⁸

Contrary to this generally accepted practice, the CPD has not conducted any validation testing of any kind on its alteration/enhancement techniques, some of which were used in this case. The undersigned attorneys requested through subpoena the production of *“any/all validation studies that validate the reliability of processing/alteration/enhancement techniques performed on latent images by members of the Forensic Services Section.”* (Attachment X). In response to this subpoena, the CPD provided a print-out of a powerpoint presentation, apparently created by the CPD, that is neither a validation document nor refers to any other validation studies of any kind. (Attachment Y). Based on this subpoena response, it seems very safe to say that the CPD has not validated any of their processing and enhancing methods (chemical or digital).

⁶⁶ Working Group on Human Factors in Latent Print Analysis, “Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach,” National Institute of Justice, p. 80 (2012); See also, John Brunty, “Validation of Forensic Tools and Software: A Quick Guide for the Digital Forensic Examiner,” *forensicmag.com* (2011)(stating that “one of the issues that continues to be of utmost important is the validation of the technology and software associated with performing a digital forensic examination.”); See also, SWGIT, “Field Photography Equipment and Supporting Infrastructure,” p. 2 (2010)(stating that “validation is a necessary part of infrastructure design and usage.”).

⁶⁷ SWGIT stands for Scientific Working Group for Imaging Technology. The SWGIT was formed by the FBI in 1997, with a purpose of “providing definitions and recommendations for the capture, storage, processing, analysis, transmission, and output of images.” SWGIT consists of members of law enforcement from every level, including federal, state, and local representatives. The immediate past Chair of the SWGIT was FBI examiner Melody Buba. <https://www.swgit.org/pdf/Section%201%20Overview%20of%20SWGIT%20and%20the%20Use%20of%20Imaging%20Technology%20in%20the%20Criminal%20Justice%20System?docID=35>.

⁶⁸ SWGIT, “Overview of SWGIT and the Use of Imaging Technology in the Criminal Justice System,” p. 5 (2010); See also, International Fingerprint Research Group, “Guidelines for the Assessment of Fingerprint Detection Techniques,” (Labs seeking to validate a fingerprint alteration method should conduct a pilot study, followed by an optimization and validation trial, and complete testing with an operational evaluation). <https://ips-labs.unil.ch/ifrg/wp-content/uploads/2014/06/IFRG-Research-Guidelines-v1-Jan-2014.pdf>.

Without validation testing, this Court has no proof of any kind that the LPU has the knowledge and skill to properly and reliably alter fingerprint images. The lack of validation testing is compounded by the fact that the LPU does not maintain any procedures that describe the proper ways to use fingerprint enhancement techniques. (Attachment G). Therefore, this Court should exclude the fingerprint evidence in this case until such time as the CPD validates the methods it uses to alter the appearance of fingerprint images.

VI. IN VIOLATION OF PROFESSIONAL NORMS, THE LPU STILL USES AN OLDER FLAWED METHODOLOGY THAT IS NOT RELIABLE AND HAS BEEN REJECTED BY THE SCIENTIFIC COMMUNITY.

The LPU substandard approach to forensic fingerprint comparison carries over to the method its examiners use to examine latent prints. The forensic fingerprint community has learned from its mistakes in the past, and has reformed the ACE-V method to require blind analysis and documentation of features in a latent print prior to exposure to the biasing effect of the suspect's prints. No longer are fingerprint examiners permitted to peek at the suspect's prints while attempting to identify ambiguous features in a distorted latent print. While leading crime labs have reformed their methods and adopted blind analysis, the LPU has not- they continue to use the old and unreliable method.

To understand the flaws with the older side-by-side analysis and the need for method reform, it is important to understand cognitive bias as a source of error and how the older method invited cognitive bias and lead to error. At its most basic, cognitive bias is outside influence that can affect any scientific or pseudo-scientific decision-maker and cause error. Some

psychologists simply refer to the phenomenon as "mental contamination."⁶⁹ As one scientist explains:

*"Cognitive bias is the tendency for an examiner to believe and express data that confirm their own expectations and to disbelieve, discard, or downgrade the corresponding data that appear to conflict with those expectations. The observer's conclusions become contaminated with a pre-existing expectation and perception, reducing the observer's objectivity and laying the groundwork for selective attention to evidence."*⁷⁰

Cognitive bias causes scientists to "seek information that they consider supportive of a favored hypothesis or existing beliefs and to interpret information in ways that are partial to those hypotheses or beliefs."⁷¹ Due to this phenomenon, scientists can "see in data the patterns for which they are looking, regardless of whether the patterns are really there."⁷² By influencing decision-makers to ignore data and seek support for preconceived ideas, cognitive bias is a source of error in data interpretation.⁷³ For instance, cognitive bias skews clinical trials of novel

⁶⁹ Wilson and Brekke, "Mental Contamination and Mental Correction: Unwanted Influences on Judgments and Evaluations," *Psychological Bulletin*, 116, p. 119, 1994.

⁷⁰ Bieber, "Fire Investigation and Cognitive Bias," *Encyclopedia of Forensic Science*, 2014.

⁷¹ Nickerson, "Confirmation Bias: A Ubiquitous Phenomenon in Many Guises," *Review of General Psychology* 2, p. 177.

⁷² Nickerson, "Confirmation Bias: A Ubiquitous Phenomenon in Many Guises," *Review of General Psychology* 2, p. 181.

⁷³ See, Hrobjartsson et al., "Bias Due to Lack of Patient Blinding in Clinical Trials," *Int. J. Epidemiol.*, p. 1272-83 (2014)(finding empirical evidence of bias in non-blind clinical trials); See also, Tape and Panzer, "Echocardiography, Endocarditis, and Clinical Information Bias," *Journal of General Internal Medicine*, 1, p. 303, 1986 (examples include the identification of abnormal cells in pathology, the counting of blood cells by medical technicians, the reading of orthopedic x-rays by medical doctors, and times for stellar transits in astronomy).

medical treatments where non-blinded assessors are used.⁷⁴ Decades of research in the scientific community has confirmed the troubling effects of cognitive bias in science.⁷⁵

By the mid-twentieth century, scientists in the broader community began adopting blind analysis methods to minimize errors that result from cognitive bias.⁷⁶ The simple theory behind blinding is that an examiner can minimize bias by “*avoiding contaminants that might bias one’s judgment.*”⁷⁷ As one expert in the broader scientific community explains:

*“sometimes researchers can implement procedures in the research design that minimize observer effects. A clear-cut example are the double-blind trials used in biomedical research.”*⁷⁸

Today, blind testing methods have been adopted across numerous scientific disciplines. For instance, blind methods in are “*widespread in areas of particle and nuclear physics,*” and “*blind analysis is often considered the only way to trust many results.*”⁷⁹ In pharmaceutical drug research, the failure to blind the clinicians from information about which patients received the

⁷⁴ Hrobjartsson et al., “Observer Bias in Randomized Clinical Trials With Measurement Scale Outcomes: A Systematic Review of the Trials with Both Blinded and Nonblinded Assessors,” *Canadian Medical Association Journal*, March 5, 2013, p. 201 (establishing the effects of observer bias in clinical trials and concluding that “failure to blind outcome assessors in such trials results in a high risk of substantial bias”); See also, Nuzzo, “How Scientists Fool Themselves-And How They Can Stop,” *Nature*, October 7, 2015 (detailing the failure of reproducibility in many areas of scientific research, attributable to cognitive bias); See also, Ioannidis, “Why Most Published Research Findings Are False,” *PLOS.Medicine*, August 30, 2005 (finding significant bias in the methodology and publication of psychological research).

⁷⁵ See also, Nuzzo, “How Scientists Fool Themselves-And How They Can Stop,” *Nature*, October 7, 2015 (detailing the failure of reproducibility in many areas of scientific research, attributable to cognitive bias); See also, Ioannidis, “Why Most Published Research Findings Are False,” *PLOS.Medicine*, August 30, 2005 (finding significant bias in the methodology and publication of psychological research).

⁷⁶ Nuzzo, “Fooling Ourselves,” *Nature*, Vol. 526, p. 183 (2015); See also, Wilson and Brekke, “Mental Contamination and Mental Correction: Unwanted Influences on Judgments and Evaluations,” *Psychological Bulletin*, 116, p. 134, 1994.

⁷⁷ Wilson and Brekke, “Mental Contamination and Mental Correction: Unwanted Influences on Judgments and Evaluations,” *Psychological Bulletin*, 116, p. 134-135, 1994.

⁷⁸ Salkind, “Encyclopedia of Research Design,” p. 564.

⁷⁹ MacCoun and Perlmutter, “Hide Results To Seek the Truth,” *Nature*, Vol. 526, p. 187 (2015).

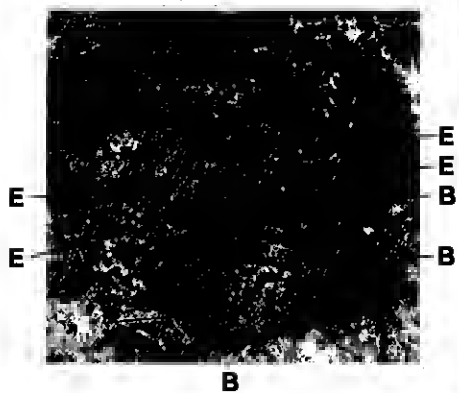
drug and which patients received a placebo would be a serious flaw in the study, due to the fact that the doctors reviewing the data would be subject to cognitive bias.⁸⁰

With regard to the more narrow community of forensic scientists, the move to blind analysis methods did not pick up steam until the Mayfield misidentification, which highlighted the problems with cognitive bias and the old ACE-V method to anyone who cared to look.⁸¹ In 2004, the FBI mistakenly arrested Brandon Mayfield for a terrorist bombing after FBI fingerprint examiners claimed to have associated his fingerprint to one from the scene of the bombing. However, before the FBI focused on Mr. Mayfield as a suspect, their fingerprint examiners reviewed the latent print blindly (without a suspect to compare with the latent print) and labeled only 7 features in the latent print, identifying them as either bifurcations or ridge endings. (See left side of diagram on the next page). After keying in on Mr. Mayfield as a suspect, the same fingerprint examiners then re-examined the latent print side-by-side with Mr. Mayfield's fingerprint standards. The troubling influence of cognitive bias on the conclusions of the FBI examiners was clear in two important ways. First, the FBI examiners changed and re-labeled 5 of the 7 original features (from bifurcation to ridge ending, and vice versa) after viewing Mr. Mayfield's fingerprint standard and in an attempt to try to make the features "match" Mr. Mayfield. (See right side of diagram below):

⁸⁰ Working Group on Human Factors in Latent Print Analysis, "Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach," National Institute of Justice, 2012, p. 10.

⁸¹ Office of Inspector General, "A Review of the FBI's Handling of the Brandon Mayfield Case," U.S. Department of Justice, 2006, p. 1.

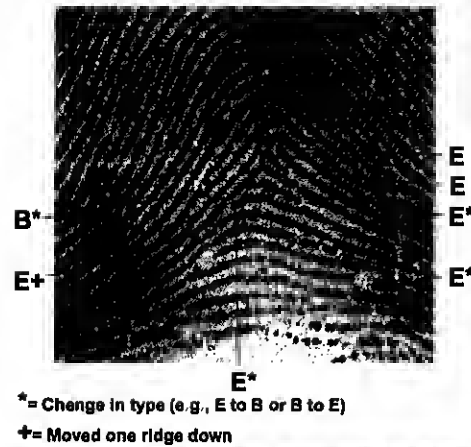
FIGURE 8A
Original IAFIS Encoding (LFP 17)



E = Ridge Ending

B = Bifurcation

FIGURE 8B
Revised Interpretation of IAFIS Points Following Mayfield Comparison (Mayfield Exemplar)



Importantly, an after-the-fact independent investigation determined that the FBI examiners erred on all but one of the changes- all but one of the features were in fact inconsistent with Mr. Mayfield yet nonetheless switched to appear to “match” him after a side-by-side comparison. Second, the FBI fingerprint examiners added 9 new features after examining the latent print and Mr. Mayfield’s print standard side-by-side. While the FBI examiners reported that all 9 of these features matched Mr. Mayfield’s fingerprint standard, after-the-fact analysis established that the FBI examiners were wrong on 7 of these 9 features.⁸²

The influence of bias on the misidentification in the Mayfield case was documented by U.S. Inspector General, who conducted a lengthy inquiry into the faulty forensic analysis. The OIG reported that the erroneous feature identifications by FBI fingerprint examiners “were adjusted or influenced during the comparison phase by reasoning ‘backward’ from features that

⁸² Office of Inspector General, “A Review of the FBI’s Handling of the Brandon Mayfield Case,” U.S. Department of Justice, p. 171 (2006).

are visible in the Mayfield exemplars.”⁸³ The OIG concluded that this error was made due to “circular reasoning” that “occurred after the Mayfield prints were compared to [the latent print from the detonator bag].”⁸⁴ This circular reasoning (cognitive bias) “began to infect the examiner’s mental process” and led to the examiner creating inculpatory evidence out of thin air.⁸⁵

Having identified the terrible effects of cognitive bias on the false fingerprint association, the OIG called for method reform. The Mayfield misidentification occurred because the older ACE-V method did not require fingerprint examiners to analyze the latent print in isolation from the suspect’s prints and permanently document their feature selections. The OIG specifically recommended that the FBI reform their ACE-V method to require blind analysis, informing the FBI that it should require “documentation of features observed in the latent fingerprint before the comparison phase to help prevent circular reasoning.”⁸⁶

In the years following the Mayfield misidentification, others in the forensic community woke up and called for the adoption of blind fingerprint analysis methods. The National Academy of Sciences⁸⁷ (NAS Committee) was the first blue-ribbon panel to address the problem of cognitive bias in forensic science and recommend method reform, calling for the adoption of

⁸³ Id. at 138.

⁸⁴ Id. at 139.

⁸⁵ Id. at 150.

⁸⁶ Id. at 271.

⁸⁷ The NAS is mandated by Congress to “advise the federal government on scientific and technical matters.” The NAS committee that authored a ground-breaking report on the status of forensic science in the U.S. included: the Director of the Virginia State Crime Lab (Pete Marone), a professor of Engineering at Stanford University (Channing Robertson), a forensic chemist and the former Director of the Forensic Science Program at Michigan State University (Jay Siegel), a forensic statistician at the University of Virginia (Karen Kafadar), and a federal Court of Appeals Judge (Hon. Harry Edwards). <https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf>.

blind analysis.⁸⁸ The Human Factors Working Group⁸⁹ issued even stronger findings and recommendations in 2012, calling for all fingerprint examiners to be trained in cognitive bias and recommending that *“procedures should be implemented to protect examiners from exposure to extraneous (domain-irrelevant) information in a case.”*⁹⁰ Moreover, the Working Group recommended that any features identified after exposure to the suspect’s print standards should be *“viewed with caution,”* and should be specifically labeled as having been identified after exposure to the suspect’s print standard.⁹¹ Most recently, the older ACE-V method was rejected by the President’s Council of Advisors on Science and Technology (PCAST)⁹²:

“As a matter of scientific validity, examiners must be required to ‘complete and document their analysis of a latent fingerprint before looking at any known fingerprint’ and ‘must separately document any data relied upon during comparison or evaluation that differs from the information relied upon during analysis. The FBI adopted these rules following

⁸⁸ National Academy of Sciences, “Strengthening Forensic Science in the United States: A Path Forward,” National Academies Press, 2009, p. 124, 184. See also, Melendez-Diaz v. Mass, 129 S.Ct. 2527 (2009)(where the U.S. Supreme Court relied on the NAS report as persuasive authority in the forensic community when holding that *“serious deficiencies have been found in the forensic evidence used in criminal trials.”*).

⁸⁹ The Human Factors Working Group was funded by the U.S. Department of Justice, and consisted of fingerprint examiner from every level of law enforcement, including fingerprint experts from the FBI, the Maryland State Police, the U.S. Secret Service, the Massachusetts State Police, the Las Vegas Police Crime Lab, the Indiana State Police Crime Lab, and the Los Angeles County Sheriff Crime Lab. In 2012, the Working Group issued a lengthy report, reviewing practices and problems with forensic fingerprint comparison. Their findings, issued in 2012 in a 200-page report, can be considered authoritative in the field.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2050067

⁹⁰ Working Group on Human Factors in Latent Print Analysis, “Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach,” National Institute of Justice, p. x-xiii (2012).

⁹¹ *Id.*

⁹² President’s Council of Advisors on Science and Technology, “Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods,” September, 2016. The PCAST consists primarily of leading scientists from across the country, including: a geneticist from MIT, an engineer and Vice President of the National Academy of Engineering, a mathematician and former CEO of The Aerospace Corporation, a doctor who was the first female president of the American College of Physicians, a chemist who directs the Institute for Nanotechnology at Northwestern University, the director of The Laboratory for Geochemical Oceanography at Harvard University, a doctor of biochemistry and professor emeritus at the University of California Berkeley, and a physicist who is a Senior Vice President at a leading aerospace and technology corporation (to name a few). For several decades, the PCAST has reported to U.S. presidents on a wide range of scientific issues, including but not limited to nanotechnology, internet broadband development, cloning, and the uses of science and technology to combat terrorism. In short, the PCAST represents one of the most important and authoritative collections of scientists in the country.

the Madrid train bombing case misidentification; they need to be universally adopted by all laboratories.”⁹³

Acknowledging the weight of the current research in the field and demands for reform as discussed above, leading crime labs have rejected the older ACE-V method and reformed their procedures to require blind analysis and permanent documentation of features prior to exposure to the suspect’s fingerprints. FBI fingerprint examiners are no longer permitted to look at a suspect’s fingerprints prior to complete examination and documentation of comparison features on the latent print. The head of the FBI fingerprint laboratory has made this practice clear:

“According to LPU Unit Chief Meagher, the analysis should be performed on the latent print before consideration of any available known prints, in order to ‘limit or try to restrict any bias in terms of what appears in the known exemplar.’ In other words, analysis of the latent is performed prior to the examination of the relevant exemplar, in order to avoid having the known print suggest features in the latent print to the examiner.”⁹⁴

Likewise, the ISP has adopted blind analysis and documentation procedures, requiring examiners at the ISP to assess latent prints in isolation and document their feature selection prior to exposure to suspect’s fingerprint standard. If an ISP examiner wishes to add features to her analysis after exposure, these features are color-coded to alert the defense to the fact that these additional features may be influenced by cognitive bias. Other crime labs have done the same.⁹⁵

Unfortunately, the LPU still clings to the older flawed method. LPU examiners, including Officer Malone, have stated that they do not document features in any way prior to

⁹³ *Id.* at 100. See also, U.S. Department of Justice National Council on Forensic Science, “Ensuring that Forensic Analysis is Based Upon Task-Relevant Information,” www.justice.gov/ncfs/file/818196/download (acknowledging the effects of cognitive bias on forensic analyses and calling for blind analysis methods involving “sequential unmasking”).

⁹⁴ Office of Inspector General, “A Review of the FBI’s Handling of the Brandon Mayfield Case,” U.S. Department of Justice, 2006, p. 105-106.

⁹⁵ See, Interpol European Expert Group on Fingerprint Identification – IEEFFI II. Method for Fingerprint Identification; See also, European Network of Forensic Science Institutes, “Best Practice Manual for Fingerprint Examination,” p. 13-15, 2015; See also, forensic-services/latent-fingerprints/procedures-manuals/ (Virginia State Crime Lab).

exposure to the suspect's prints, and have gone so far as to claim that the only reason they document features at all is out of a courtesy for defense attorneys when requested in a case:

- Officer Malone testified that the reformed method of identifying and documenting features in the latent print prior to exposure to the suspect's prints *"is not a process we use."* (Attachment Q, p. 71).
- Officer Dabrowska has stated that she does not document comparison features during analysis. (Attachment A, p. 8, 10).
- Officer Calvo admits that he does not document any comparison features prior to reaching his final opinion in a case. (Attachment W, p. 2).
- Officer Seavers states that she does not document comparison features prior to looking at the suspect's prints. (Attachment S, 4).
- Officer Daniels claims that he documents comparison features only after-the-fact when creating a *"demonstrative"* for court, and further has testified that the number of features he identifies on the demonstrative is *"basically random. . . just for foundation for the identification."* (Attachment H, p. 19-21).

According to these LPU officers, they document comparison features in the latent only after examining the suspect's prints, or sometimes later after reaching their opinion about whether the suspect is the source of the latent print. This flawed process- and its open invitation to error based on biasing signals from the suspect's prints- has been abandoned by leaders in the field and is no longer scientifically defensible given the modern understanding of cognitive bias. When combined with the other systemic failures detailed above, this Court should not hesitate to exclude the opinions of LPU officers obtained through this flawed method.

VII. THE LPU HAS FAILED TO ATTAIN ACCREDITATION, CALLING INTO QUESTION THE RELIABILITY OF ITS FORENSIC CASEWORK.

Today, forensic labs must be accredited, and the accreditation process presents very real hurdles that fingerprint labs must overcome to establish their professionalism and the reliability of their results. The U.S. Department of Justice, through its National Commission on Forensic Science (NCFS), issued the latest call for accreditation- *"To improve the overall quality of forensic science, all entities performing forensic science testing, even on a part-time basis, must*

be included in universal accreditation."⁹⁶ The NCFS explains that accreditation involves an assessment of the validation and reliability of crime lab methods, the competency and training of examiners at the lab, and the quality assurance procedures in the lab. Basic accreditation requires labs to adopt the fundamental attributes of good science: 1) validation of methods, 2) operation pursuant to written protocols, and 3) audits to assess the ongoing validity and reliability of their scientific methods.⁹⁷ The question of accreditation is so fundamental to the proper functioning of a crime lab that the American Bar Association formally adopted a resolution demanding that all crime labs be accredited.⁹⁸

The American Society of Crime Laboratory Directors (ASCLD) conducts accreditation reviews of crime laboratories and approves accreditation for any labs that pass muster.⁹⁹ Labs seeking ASCLD accreditation must have written procedures defining testing methodology and interpretation of testing data, written training manuals, and a written quality assurance plan that involves corrective actions for non-conforming work. Currently, there are 350 government/law enforcement crime labs in the U.S. that have proper accreditation through ASCLD.¹⁰⁰ Many police agencies similar to the CPD have sought and obtained accreditation, including but not limited to the following:

⁹⁶ The NCFS is a collaboration between the U.S. Department of Justice and the National Institute of Standards and Technology. The stated mission of the NCFS is to provide recommendations concerning "*notional methods and strategies for [] strengthening the validity and reliability of forensic science. . .*" The NCFS Board includes representatives from law enforcement forensic agencies from around the country, including but not limited to: the founder of the Armed Forces DNA Identification Lab, a chemist formerly with the U.S. Customs Lab, a member of the FBI DNA Advisory Board, the Director of the Palm Beach Sheriff's Office Crime Lab, a forensic chemist with ATF, the Director of the Virginia State Crime Lab, and a forensic chemist with the FBI. The NCFS is co-chaired by the Deputy U.S. Attorney General. <https://www.justice.gov/ncfs>.

⁹⁷ Huber, "Understanding and Implementing ISO/IEC 17025," Agilent Technologies, p. 9.

⁹⁸ www.americanbar.org/content/dam/aba/...justice.../crimjust_policy_am04111b.doc.

⁹⁹ <http://www.ascl-d-lab.org/international-testing-program/>.

¹⁰⁰ <http://www.ascl-d-lab.org/accredited-laboratory-index/>

- Alameda County (CA) Sheriff Crime Lab
- Albuquerque (NM) Police Department Crime Lab
- Austin (TX) Police Department Crime Lab
- Broward County (FL) Sheriff Crime Lab
- Chandler (AZ) Police Department Crime Lab
- Charleston (SC) Police Department Crime Lab
- Charlotte (NC) Police Department Crime Lab
- Chicago Regional Computer Forensics Lab
- Columbus (OH) Police Department Crime Lab
- Corpus Christi (TX) Police Department Crime Lab
- El Cajon (CA) Police Department Crime Lab
- Eugene (OR) Police Department Crime Lab
- Hagerston (MD) Police Department Crime Lab
- Las Vegas (NV) Police Department Crime Lab
- Long Beach (CA) Police Department Crime Lab
- Los Angeles (CA) County Sheriff Crime Lab
- Los Angeles (CA) Police Department Crime Lab
- Mansfield (OH) Police Department Crime Lab
- Nashville (TN) Police Department Crime Lab
- Miami-Dade (FL) Police Department Crime Lab
- Monroe County (NY) Crime Lab
- Montgomery (MD) Police Department Crime Lab
- Oakland (CA) Police Department Crime Lab
- Oklahoma (NE) City Police Department Crime Lab
- Palm Beach (FL) County Sheriff Crime Lab
- Prince William (VA) County Police Crime Lab
- Rapid City (SD) Police Crime Lab
- San Diego (CA) Police Department Crime Lab
- San Francisco (CA) Police Department Crime Lab
- Scottsdale (AZ) Police Department Crime Lab
- St. Louis (MO) Police Department Crime Lab
- Tucson (AZ) Police Department Crime Lab
- Tulsa (OK) Police Department Crime Lab
- Wilmington (NC) Police Department Crime Lab
- Yonkers (NY) Police Department Crime Lab

The ISP is accredited, and boasts that accreditation means that the ISP “*must adhere to stringent standards of quality and sound scientific practice.*”¹⁰¹

Given the many systemic flaws of the LPU discussed above, it may not be surprising that the LPU has never sought accreditation. No independent authority has assessed the training program at the LPU for adequacy, has reviewed LPU policies to see if they provide minimal direction for examiners, or has examined LPU QA procedures to assess whether they are robust

¹⁰¹ http://www.isp.state.il.us/aboutisp/deptorg_dfs.cfm

enough to identify and rectify substandard forensic work. The LPU has simply operated, year after year, while avoiding the oversight that is built into the accreditation process.

This should be a scary prospect for everyone in the Cook County criminal justice system. When other crime labs with deficiencies similar to the LPU have been audited, systemic problems have been identified and plans for improvement have been implemented. For instance, when quality issues were identified with a drug lab in Massachusetts, the Office of Inspector General conducted an audit, and identified numerous lab deficiencies- lack of accreditation, lack of written protocols, lack of examiner training, and lack of a QA program. (Attachment C, p. 19-46). The OIG recommended important reforms for the lab, including better training, better QA procedures, and accreditation for the lab. (Attachment C, p. 117-119). In North Carolina, the Attorney General appointed two retired FBI forensic experts to audit its crime lab. The FBI experts discovered that the N.C. lab lacked appropriate written procedures and suffered quality issues due to a lack of accreditation. (Attachment E). The auditors recommended that the N.C. lab attain accreditation "*at the earliest possible date*", that the lab re-train its examiners, and that the lab post all operating procedures on-line so that "*the operations of the lab are transparent and accessible to the public.*" (Attachment E, p. 29-30). Similar audits have been undertaken to address shortcomings with crime labs in Detroit¹⁰², St. Paul (MN)¹⁰³, Washington D.C.¹⁰⁴, and Austin¹⁰⁵ (TX).

¹⁰² http://www.sado.org/content/pub/10559_MSP-DCL-Audit.pdf.

¹⁰³ <http://minnesota.publicradio.org/features/2013/02/crime-lab-report/>.

¹⁰⁴ https://dfs.dc.gov/sites/default/files/dc/sites/dfs/page_content/attachments/ANAB%20Report%20Final%202015.pdf.

¹⁰⁵ <http://www.austinchronicle.com/news/2016-12-02/the-future-of-austins-crime-lab/>.

Given the substantial flaws with the LPU, the lack of accreditation should preclude admission of fingerprint opinions from the LPU until this situation is rectified. This Court should not admit opinions of LPU examiners until a comprehensive accreditation audit establishes that LPU practices are reliable, their examiners are competent, and their results do not misstate the probative value of fingerprint evidence.

VIII. ILLINOIS LAW SUPPORTS JUDICIAL ACTION IN THIS MATTER

In Frye jurisdictions, judicial inquiry into general acceptance is only a small part of the court's duty when assessing the admissibility of scientific evidence. Even when a scientific method may be generally accepted by the broader scientific community, the application of the method in any given case may be so substandard that the evidence is no longer reliable.¹⁰⁶ Acknowledging this, Illinois courts "*act as 'the gatekeeper' allowing through only reliable and relevant evidence for consideration by the jury.*" Roach v. Union Pacific Railroad, 19 N.E.3d 61, 70 (1st Dist. 2014)(holding that courts have "*considerable leeway in deciding how to go about determining whether a particular [medical] expert's testimony is reliable*"); See also, Decker v. Libell, 737 N.E.2d 623, 625 (Ill. 2000)(stating that in assessing expert testimony, the trial court "*serves the role as 'gatekeeper,' barring testimony that is not sufficiently relevant or reliable to be admitted into evidence*"); See also, Soto v. Gaytan, 728 N.E.2d 1126 (2nd Dist. 2000)(holding that "*as gatekeeper of expert opinions disseminated to the jury, the trial court plays a critical role in excluding testimony that does not bear an adequate foundation of reliability*"); See also,

¹⁰⁶ See McKown, 236 Ill. 2d at 305; See also People v. Luna, 2013 IL App (1st) 072253, ¶72 (1st Dist. 2013); People v. Floyd, 2014 IL App (2d) 120507, ¶22-24 (2d Dist. 2014); United States v. Frazier, 387 F.3d 1244, 1263 (11th Cir. 2004); Murray, 2014 D.C. Super. LEXIS at 33-35, 56-58; United States v. Van Wyk, 83 F. Supp. 2d 515 (D.N.J. 2000); United States v. Santillan, 1999 WL 1201765 (N.D. Ca 1999); United States v. Reynolds, 904 F.Supp. 1529, 1558 (E.D. Oka. 1995); Bowers, "Forensic Testimony: Science, Law and Expert Evidence," Academic Press (2014); Mnookin, "The Courts, NAS, & the Future of Forensic Sciences," Brooklyn L. R., Vol. 75, p. 51-55 (2010).

Illinois v. Taylor, 782 N.E.2d 920, 927 (2nd Dist. 2002)(holding that “*as the gatekeeper of expert opinions disseminated to the jury, the trial court must look behind the expert’s conclusion and analyze the adequacy of the foundation,*” and further holding that “*the trial court is not required to blindly accept an expert’s assertion that his or her testimony has an adequate foundation*”).

When conducting this increased scrutiny of proposed expert testimony, courts are guided by Illinois Rule of Evidence 403, which requires exclusion of evidence “*if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury.*”¹⁰⁷ Courts use Rule 403 when assessing the admissibility of forensic testimony,¹⁰⁸ and exclude unreliable forensic testimony when the testimony would confuse or mislead the trier of fact.¹⁰⁹ In fact, the U.S. Supreme Court in Daubert held that trial courts should conduct vigorous scrutiny when applying Rule 403 to expert testimony.¹¹⁰ In so holding, the Daubert court stated that, “[e]xpert evidence can be both powerful and quite misleading because of the difficulty in evaluating it. Because of this risk, the judge ... under Rule 403 of the present rules exercises more control over experts than over lay witnesses.”¹¹¹ In this case, the danger of exposing the jury to confusing and misleading scientific testimony could not be more

¹⁰⁷ Ill.Rule.Evid. 403.

¹⁰⁸ See, U.S. v. Van Wyk, 83 F. Supp. 2d 515 (D.N.J. 2000)(holding that “in assessing a proffer of expert testimony [], the court must also consider other applicable rules such as F.R.E. 403. . .”); See also, Bowers, “Forensic Testimony: Science, Law and Expert Evidence,” Academic Press, 2014 (stating that courts can use Rule 403 to exclude expert testimony that is unfairly prejudicial).

¹⁰⁹ See, U.S. v. Santillan, 1999 WL 1201765 (N.D. Cal. 1999)(holding that handwriting comparison testimony was more prejudicial than probative); See also, William v. Reynolds, 904 F.Supp. 1529 (E.D. Oka. 1995) (holding that the probative value of hair comparison evidence is substantially outweighed by its prejudicial effect); See also, Mnookin, “The Courts, The NAS, and the Future of Forensic Science,” Brooklyn Law Review, Vol. 75, p. 51-55 (2010).

¹¹⁰ Daubert v. Merrill Dow Pharmaceuticals, Inc., 509 U.S. 579, 595 (1993).

¹¹¹ Daubert v. Merrill Dow Pharmaceuticals, Inc., 509 U.S. 579, 595 (1993); See also, United States v. Monteiro, 407 F.Supp.2d 351, 358 (D. Mass. 2006) (“*The court’s vigilant exercise of this gatekeeper role is critical because of the latitude given to expert witnesses to express their opinions on matters about which they have no firsthand knowledge, and because an expert’s testimony may be given greater weight by the jury due to the expert’s background and approach.*”); See also, Soto v. Gaytan, 728 N.E.2d 1126 (2nd Dist. 2000)(holding that trial courts must assess the foundational admissibility of expert testimony more closely than lay testimony “*because the rules of evidence grant expert witnesses testimonial latitude unavailable to other witnesses on the assumption that the expert’s opinion will have a reliable basis in the knowledge and experience of his discipline.*”).

clear, and it requires judicial action. The unfair prejudice in this case comes from two sources: the fact that fingerprint examinations performed by the LPU are unreliable, and the fact that testimony by LPU examiners will mislead the trier of fact regarding the probative value of the fingerprint evidence.

For all of the reasons explained above, fingerprint examinations by the LPU are completely unreliable. LPU examiners do not follow any written protocols, making errors more likely. The LPU has no QA system, so it is incapable of identifying errors and correcting them. The LPU has not properly trained its examiners, causing them to fail to understand the strengths and weaknesses of their discipline and to provide inaccurate opinions. The LPU has not validated any of the methods it uses to alter the appearance of fingerprint evidence, meaning that none of these methods have been shown to be reliable and accurate. The LPU still uses a flawed examination method that is more likely to lead to erroneous results. And the LPU has never passed an accreditation audit, raising red flags about the professionalism and accuracy of its examinations. At every turn, the LPU has failed to establish the reliability of its operation, leaving no option for this Court as gatekeeper but to exclude the proffered fingerprint testimony.

Separately, the proffered testimony in this case would unfairly prejudice Mr. Henderson because the CPD examiner will not accurately inform the trier of fact of the weaknesses with the LPU, the known limitations of fingerprint comparisons, the chance of error in this case, and the probative value of a fingerprint association. The list below details the claims that CPD examiners make about the probative value of a fingerprint association, and the claims that they should make based on accepted research in the field:

CPD Claims

- Fingerprint opinions are objective.
- Fingerprint comparison can identify the source of a print to the exclusion of all others in the world.
- There is a 0% chance that an error was made in this case, and I am not willing to discuss recognized error rate studies.
- The use of AFIS in this case does not change anything, because the examiner still makes the final decision.
- The non-blind method I used in this case is generally accepted and cognitive bias is not a problem.

Accurate Claims

- Fingerprint opinions are subjective.
- Fingerprint examiners must refrain from making claims of absolute source attribution.
- False positive errors happen, and studies show they happen in as many as 1 in 18 cases.
- Errors are more likely in AFIS cases because of close non-matches in large databases.
- The non-blind method I used in this case increases the chance of error due to cognitive bias.

In addition to these claims, fingerprint examiners from the LPU will fail to concede that the lack of written protocols, the lack of a quality assurance plan, the lack of accreditation, and the failure of validation, all mean that errors are more likely to occur in examinations conducted by the LPU.

Although the fact that testimony by LPU examiners will overstate the probative value of print evidence is clear from the arguments summarized above, it also the opinion of Glenn Langenburg. After reviewing LPU policies and practices, Langenburg concluded that LPU examiners *"cannot provide the proper foundation, context, and objectivity supporting a scientific expert opinion of latent print evidence."* (Attachment J). Langenburg further concluded that the deficiencies with the LPU *"raise serious concerns about their knowledge, skill and abilities to perform fingerprint examinations and appropriately convey their results to the trier of fact."* (Attachment J).

Despite the many deficiencies with the LPU and the mandate of Rule 403 calling on courts to exclude unreliable forensic testimony, this Court may be tempted to accept the argument that the concerns raised here go to weight rather than admissibility. However, this

hands-off approach could only be justified if cross-examination or the conflicting opinion of a defense expert possessed the potential to expose the weaknesses of the fingerprint methods of the CPD and the resulting weakness of the fingerprint evidence in this case. However, the research bears out precisely the opposite conclusion. Study after study shows that jurors have a difficult time accurately assessing the real value of forensic evidence.¹¹² These same studies also show that with forensic evidence in particular, cross-examination is ineffective in rectifying erroneous assessments of forensic evidence by jurors.¹¹³ Finally, even when the defense presents its own

¹¹² See, Thompson, "Lay Understanding of Forensic Statistics," *Law & Human Behavior*, Vol. 31, p. 332-49 (2015) (reviewing studies on juror comprehension of statistics and concluding that factfinders are susceptible to statistical fallacies, both prosecution and defense varieties); See also, Koehler, "If the Shoe Fits They Might Acquit," Northwestern University Public Law Research Paper, January 12, 2011 (concluding that jurors "*are slow to revise incorrect probabilistic hypotheses*" "*fall prey to logical fallacies*" and "*failed to appreciate the role that error plays in interpreting the value of a reported match*"); See also, Sanders, "Reliability Standards—Too High, Too Low, or Just Right?," *Seton Hall L. Rev.*, Vol. 33, p. 881-1282, at 901, 919 (2003) (describing jurors as struggling with statistical information and unable to detect expert witness biases); See also, Dawn McQuiston-Surrett & Michael J. Saks, *Communicating Opinion Evidence in the Forensic Identification Sciences: Accuracy & Impact*, 59 *Hastings L.J.* 1159, 1170 (2008) ("most jurors have an exaggerated view of the nature and capabilities of forensic identification"); See also, *People v. New*, 2014 IL 116306, at ¶26 (Ill. 2014) (noting the "*natural inclination of the jury to equate science with truth and, therefore, accord undue significance to any evidence labeled scientific*"); See also, *People v. Zayas*, 131 Ill. 2d 284, 292 (1989) (in ruling hypnotically-assisted-recall testimony inadmissible court emphasized the likelihood and danger of prior juror exposure to misleading information about hypnosis).

¹¹³ See, Sanders, "Reliability Standards—Too High, Too Low, or Just Right?," *Seton Hall L. Rev.*, Vol. 33, p. 881-1282, at 934-936 (2003) (Concluding that multiple studies bear out the sobering reality that even robust cross examination of experts affects neither ultimate verdicts nor even juror confidence in said verdicts); See also, Koehler, "If the Shoe Fits They Might Acquit," Northwestern University Public Law Research Paper, January 12, 2011 ("*Contrary to predictions, none of the source and guilt dependent measures in the main experiment were affected by the introduction of cross examination. There was no effect for cross examination on source confidence, source probability, guilt confidence, guilty probability, or verdict. Likewise there was no effect for cross examination across the two individualization conditions on any of the dependent measures.*"); See also, Saks, "The Testimony of Forensic Identification Science: What Expert Witnesses Say and What factfinders Hear," *Law & Human Behavior* (Authors conducted a study and reviewed others, ultimately finding "*little or no ability of cross-examination to undo the effects of an expert's testimony on direct examination, even if the direct testimony is fraught with weaknesses and the cross is well designed to expose those weaknesses.*" Interestingly, the authors conclude that cross examination can effect juror evaluation of expert evidence if it is presented honestly as a subjective guess, but that "*...the unshakeableness of the traditional forms: match and similar-in-all-microscopic-characteristics produce something of a ceiling effect, which resist moderation by the presentation of other information.*"); See also, Shari Seidman Diamond, et al., "Juror Reactions to Attorneys At Trial," 87 *J. Crim. L. & Criminology* 17, 41 (1996) (The author conducted an experiment, using 1925 jury-eligible residents of Cook County, which varied the strength of an attorney's cross examination of an expert witness and found that, "*Although juror perceptions of the attorney appear susceptible to influence by the attorney's efforts during cross-examination, the strong cross-examination had no effect on the verdict.*").

expert, juror misconceptions about the forensic evidence can persist.¹¹⁴ It is for these reasons that researchers who investigate the effects of expert testimony on jurors conclude that their “results should give pause to anyone who believes that the traditional tools of the adversarial process will always undo the adverse effects of weak expert testimony.”¹¹⁵ These crucial factors—jurors’ misperceptions of the value of forensic evidence and the ineffectiveness of cross examination—make clear that a judicial approach of just leaving it to the jury to sort out is untenable. Rather, this Court should exclude the prosecution’s unreliable, misleading, and confusing forensic evidence.

IX. CONCLUSION

For the reasons stated above, Mr. Henderson requests that this Court do the following:

- 1) Exclude the results of the fingerprint examination in this case,
- 2) Order that the LPU pass an independent and comprehensive audit before the results of fingerprint examinations by the LPU will be admitted into evidence in this Court,
- 3) Conduct an evidentiary hearing to further establish the factual basis of claims made herein.

Respectfully Submitted,

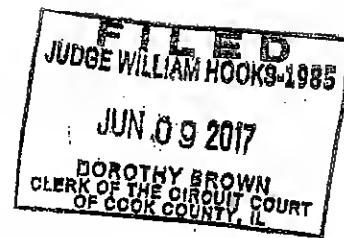
Brendan Max, Brett Gallagher

Cook County Public Defender Office

¹¹⁴ Sanders, “Reliability Standards—Too High, Too Low, or Just Right?,” Seton Hall L. Rev., Vol. 33, p. 881-1282, at 934 (2003).

¹¹⁵ McQuiston-Surrett & Saks, “Communicating Opinion Evidence in the Forensic Identification Sciences,” Hastings Law Journal, Vol. 59, at p. 1188; See also, Sanders, “Reliability Standards—Too High, Too Low, or Just Right?,” Seton Hall L. Rev., Vol. 33, p. 881-1282, at 936 (2003) (“*experimental findings should give pause to ... others who believe that the traditional tools of the adversarial process are a full substitute to restrictions on the admissibility of unreliable expert testimony.*”); See also, Murray v. Motorola, 2014 D.C. Super. LEXIS 16 (2014)(wherein the court decided not to leave it up to the jury to assess the methods of an expert epidemiologist, reasoning that “*the court cannot be confident that effective advocacy can eliminate the risk that a jury would be misled by [the expert’s] testimony and reach a result on an improper basis.*”).

STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)



**IN THE CIRCUIT COURT OF COOK COUNTY, ILLINOIS
COUNTY DEPARTMENT – CRIMINAL DIVISION**

PEOPLE OF THE STATE OF ILLINOIS,)
Respondent – Plaintiff,)

v.)

COURTNEY HENDERSON,)
Petitioner – Defendant.)

No. 16CR-13216(01)
Hon. William Hooks,
Judge Presiding

**PEOPLE'S RESPONSE TO DEFENDANT'S MOTION TO EXCLUDE
FINGERPRINT TESTIMONY**

Now come the PEOPLE OF THE STATE OF ILLINOIS, by their attorneys, KIMBERLY M. FOXX, State's Attorney of Cook County, Illinois, and her Assistant, Mark A. Ertler, and respectfully ask that this Honorable Court deny Defendant's Motion to Exclude Fingerprint Testimony Due to Multiple Systemic Failures. In support thereof, the People state as follows:

I. PROCEDURAL HISTORY

Defendant is charged by way of indictment with Attempt Murder, Aggravated Discharge of a Firearm, Armed Robbery and Aggravated Unlawful Restraint stemming from an incident that occurred on July 1, 2016. Defendant is alleged to have shot the

victim with a sawed off shotgun during a robbery in which items were eventually taken from the victim's car.

The Chicago Police Department (CPD) recovered latent ridge impressions from the victim's vehicle. Subsequent analysis conducted by the CPD Latent Print Unit resulted in the identification of the defendant as the source of the latent impressions found in the car.

On April 25, 2017, counsel for Defendant filed a "Motion to Exclude Fingerprint Testimony Due to Multiple Systemic Failures," which essentially argues that this Court should as a matter of law bar the introduction of evidence regarding the fingerprint comparison referenced above, as well as order the Chicago Police Latent Print Unit to submit to an audit. The People respectfully respond as set forth below.

II. THE RESULTS OF LATENT PRINT COMPARISON CONDUCTED BY THE CHICAGO POLICE DEPARTMENT SHOULD BE ADMITTED AT TRIAL.

Evidence regarding the analysis and comparison of fingerprints and latent impressions has been admissible in Illinois for well over 100 years.¹ Defendant does not suggest that this Court conduct a hearing pursuant to *Frye v. United States*.² Therefore, evidence of fingerprint analysis is admissible, subject to the customary *voir dire* regarding any expert witness' qualifications at trial.

Testimony by expert witnesses is admissible in Illinois under Rule 702 of the Illinois Rules of Evidence. "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify

¹ *People v. Jennings*, 252 Ill. 534 (1911).

² *Frye v. United States*, 293 F. 1013, 54 App. D.C. 46 (1923).

thereto in the form of an opinion or otherwise.”³ Fingerprint examiners from the Chicago Police Department (CPD) have for decades been routinely found qualified to provide expert testimony in the Circuit Court of Cook County.

Defendant’s assertion that this Court should now as a matter of law bar all evidence of fingerprint analysis conducted by CPD is unjustified and would constitute the most extreme of remedies where none is warranted. Defendant is free to cross-examine Latent Print Examiner Michael Malone or any other witness called by the People to testify to fingerprint analysis regarding that witness’ qualifications at trial. His methodology and conclusions may likewise be subject to cross-examination. Defendant may argue to the trier of fact what weight should be given to LPE Malone’s testimony, but there is no reasonable basis to hold that his testimony is inadmissible as a matter of law. While defendant argues that he would be unable to cross-examine Malone in a meaningful way, the sheer volume of material prepared by and presented by defendant in his motion demonstrates that quite the opposite is true.⁴ It appears that the defendant, through his counsel, is well-prepared to conduct a vigorous cross-examination.

Defendant attempts to skirt the fact that *Frye* controls here, and the fact that no hearing is necessary to determine the admissibility of evidence regarding fingerprint comparison. He urges this Court to examine a number of factors that are not required under the *Frye* standard. Defendant is essentially asking this Court to apply an analysis akin to *Daubert*,⁵ which is simply not the law in Illinois. In fact, when codifying the Illinois Rules of Evidence, the Illinois Supreme Court specifically chose to ensure that

³ Ill.R.Evid. 702.

⁴ See Defendant’s Motion, p. 44-46.

⁵ *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

Frye remained the standard for determining the admissibility of evidence, in keeping with well-established Illinois law.⁶

Defendant argues that Illinois Rule of Evidence 403 mandates the exclusion of fingerprint evidence in this case because it would expose a jury to confusing and misleading scientific testimony.⁷ Rule 403 provides for a balancing test where evidence may be excluded “if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence.”⁸ In support of his assertion that this Court should apply Rule 403 in the instant matter, defendant cites federal court decisions which reference Federal Rule of Evidence 403.⁹ Those decisions were reached in the context of *Daubert*, which is the standard used in federal courts, but which **does not apply in Illinois**.

If this Court were to apply the balancing test under Illinois law, it is clear that the trier of fact should be permitted to hear the evidence in question and to make its own determination as to the weight to be given said evidence. Testimony regarding fingerprint comparison is not so complex or confusing that a jury would be incapable of understanding it or of determining the credibility of the evidence. Illinois juries have done so for over a century. Rule 403 should not serve as a back door to a *Daubert* analysis in conflict with deeply rooted Illinois law.

It is not necessary to address the accuracy of defendant’s numerous assertions regarding the standards and practices of the CPD Latent Print Unit at this juncture, as the

⁶ *Id.*; See also *Donaldson v. Central Illinois Public Service Co.*, 199 Ill.2d 63, 767 N.E.2d 314 (2002).

⁷ See Defendant’s Motion, p. 42.

⁸ Ill.R.Evid. 403

⁹ Defendant’s Motion, p. 42.

methodology employed by LPE Malone is appropriately the subject of cross-examination at trial. Defendant urges this Court to paint with a broad brush and to anticipatorily assume that information garnered from multiple interviews with latent print examiners not involved in the instant case would be both relevant and impeaching at trial. Such an assumption is both premature and unjustified.

Similarly, the criticisms expressed by defendant's purported experts is misplaced in this motion. The evidence of fingerprint comparisons conducted by LPE Malone is clearly admissible under the *Frye* standard. Defendant is free to call his own experts to testify, if he so chooses. The determination of Malone's qualifications is an **individual** determination to be made by the Court at the appropriate time, not as part of an all-encompassing ban on the Chicago Police Department's Latent Print Unit.

Perhaps the most informative aspect of defendant's motion lies in what he does not say. Defendant raises no suggestion that LPE Malone is wrong. Despite the massive amount of information he asks the Court to consider, defendant has not offered an opinion by one of his own experts that Malone made a misidentification. The best remedy available to the defendant at this time is to have his own expert conduct an evaluation of the evidence, yet that is the remedy of which he chooses not to avail himself.

III. DEFENDANT'S REQUEST FOR A COURT ORDERED AUDIT SHOULD BE STRICKEN, OR IN THE ALTERNATIVE, DENIED.

Defendant seeks the extraordinary remedy of a court-ordered audit of the CPD Latent Print Unit. This motion is not properly brought before the Court, and no such remedy is available even if this Court had the jurisdiction to enter such an order. The portions of defendant's motion that address an audit of CPD should therefore be stricken, or in the alternative, denied.

Defendant seeks an adverse order against the Chicago Police Department. Neither the City of Chicago, nor specifically CPD, are party to the instant cause of action. Defendant has made no showing that the City of Chicago or the Chicago Police were served with proper legal notice of defendant's motion. The Office of the Cook County State's Attorney represents the People of the State of Illinois in this proceeding and is not an agent of the City or of CPD for purposes of service of process. It is wholly unfair for the defendant to ask this Court to enter an order against a non-party who has not been given the benefit of due process.

Outside of rhetoric, defendant has failed to establish that the extraordinary remedy he seeks is legally available. Defendant has cited no statute or precedent that establishes the court imposed audit of a police department's fingerprint unit as a remedy available to a defendant in a criminal case. The matter currently before the Court is unlike the exclusion of evidence in a motion to suppress, where the sanction is based on a finding that the past conduct of law enforcement agents violated a defendant's rights. Rather, the defendant here asks the Court to order future action by a non-party. Further, defendant has failed to make any showing that this Honorable Court even has the jurisdiction to hear such a request.

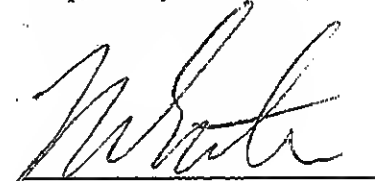
Defendant's request that this Court order a comprehensive audit of the Chicago Police Latent Print Unit should be stricken. Defendant has failed to demonstrate that this Court has jurisdiction over the matter. Additionally, the remedy sought is not legally available to the defendant. In the alternative, defendant's request should be denied as a matter of law.

IV. CONCLUSION

Fingerprint comparison evidence has long been and remains admissible in Illinois. It is not new or novel and it enjoys general acceptance in the relevant scientific community. Challenges to the qualifications of and methods employed by a particular expert should be limited to the specific case and expert involved and should not involve a sweeping review of an entire agency. Defendant has failed to establish that the remedies he seeks are available or that this Court has jurisdiction to order the audit he urges.

WHEREFORE, the People respectfully ask this Honorable Court to DENY the Motion to Exclude Fingerprint Testimony Due to Multiple Systemic Failures.

Respectfully submitted,



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IN THE CIRCUIT COURT OF COOK COUNTY - CRIMINAL DIVISION

STATE OF ILLINOIS

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16 CR 1321601

V.

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)

JUDGE WILLIAM HOOKS

COURTNEY HENDERSON

)

PRESIDING

FILED

AUG 03 2017

DOROTHY BROWN
CLERK OF CIRCUIT COURT

DEFENDANT'S REPLY-

MOTION TO EXCLUDE FINGERPRINT TESTIMONY

DUE TO MULTIPLE SYSTEMIC FAILURES

Courtney Henderson, through the Cook County Public Defender, requests that this Court exclude the testimony of Officer Malone. In reply to the State's Response Motion, Mr. Henderson states the following:

I. INTRODUCTION

The State's Response Motion provides very limited insight into the important issues before this Court and does not provide justification for precluding further litigation of the issues contained in Mr. Henderson's Motion to Exclude Fingerprint Testimony. First, the State's Response does not address in any way the factual allegations supported in Mr. Henderson's Motion to Exclude the fingerprint evidence in this case- pointing to the inescapable conclusion that the CPDLPU is a woefully substandard forensic lab that fails every benchmark of reliable science. Second, even though Mr. Henderson's Motion to Exclude is not based on Frye and its progeny, the State attempts to muddy the waters of this litigation by claiming that Frye is at issue in this case, thereby seeking to sidestep the clear application of Rule 403 to the unreliable

fingerprint evidence in this case. Third, the State's tactic to try to avoid dealing with the actual substance of the many failings of the CPDLP- getting a second opinion from another fingerprint examiner- is equally flawed because second opinions have been demonstrably wrong in the past and because a second opinion does not cleanse the CPDLPU of their many and fundamental deficiencies. For these reasons, this Court still has every reason to address the merits of Mr. Henderson's Motion to Exclude Fingerprint Testimony, and rule in favor of Mr. Henderson.

II. THE UNREBUTTED FACTUAL CLAIMS OF SYSTEMIC FLAWS AT THE CPDLPU REQUIRE FURTHER LITIGATION, INCLUDING AN EVIDENTIARY HEARING.

Supported by extensive investigation, the latest research in the relevant scientific community, and the signed statements of three of the nation's leading forensic experts, Mr. Henderson alleges that the CPDLPU suffers from multiple systemic flaws that violate every tenant of reliable science. (Motion to Exclude Fingerprint Testimony, p. 3-41). These flaws include the following:

- **Protocols-** While standard practice in the fingerprint community requires that examiners follow written laboratory protocols that define the examination process and the opinions that result from the examination process, the LPU does not operate pursuant to such protocols.
- **Quality Assurance-** While fingerprint labs in the U.S. are required to maintain a documented quality assurance program designed to identify and correct errors, the LPU has no such program.
- **Training-** While other fingerprint labs have documented training programs designed to re-educate examiners on the fundamental changes and reforms in the field, the LPU has no such training program and its examiners lack basic knowledge about the present state of their own forensic discipline.
- **Validation-** While standard practice in the scientific community requires fingerprint alteration techniques to be validated for scientific reliability, the CPD uses techniques to alter the appearance of original fingerprint evidence without ever having validated any of the techniques to establish reliability.

- **Methodology-** While some fingerprint labs in the past permitted themselves to cheat by looking at the suspect's prints when attempting to identify ambiguous features in latent prints, this older method is no longer generally accepted yet still in use at the LPU.
- **Accreditation-** While hundreds of forensic labs across the country have gone through the accreditation process to establish the validity and reliability of their examinations, the LPU has side-stepped this process and sought to shelter its substandard practices from meaningful oversight.

Despite the seriousness of Mr. Henderson's claims, the State did not expend a single sentence of their Response trying to refute these factual allegations or justify the work conducted by the CPDLPU. This fact alone should be fatal to the admissibility of the State's fingerprint evidence in this case.

Of the many flaws with the CPDLPU listed above, consider just the problem with lab protocols. The forensic community universally agrees that forensic labs must operate pursuant to adequate written protocols- the U.S. Department of Justice and the American Bar Association have said as much, accrediting bodies refuse to certify labs that fail to maintain adequate written protocols, and auditors of failed crime labs have found the lack of adequate written protocols to be a major factor in the failure of numerous forensic labs. (Motion to Exclude Fingerprint Testimony, p. 3-9). With regard to CPDLPU protocols, Mr. Henderson alleges that the CPDLPU protocols are so flawed as to amount to a complete lack of meaningful direction for CPDLPU examiners. This allegation is supported by a simple reading of the documentation which the CPDLPU passes off as "protocols," by statements of CPDLPU examiners who admit that they don't follow protocols, and by the informed opinion of three of the nation's leading forensic scientists who reviewed CPDLPU documentation. (Henderson Motion to Exclude Fingerprint

Testimony, p. 3-9). Faced with this irrefutable record of scientific failure, the State simply encourages this Court to ignore this problem.¹

This Court should decline the State's offer to have the criminal justice system look the other way while the CPDLPU conducts unreliable science with flawed methods. The allegations in Mr. Henderson's Motion to Exclude Fingerprint Testimony with regard to protocols and other important scientific benchmarks should give this Court (and for that matter the State) great pause. By simply ordering that this matter proceed to an evidentiary hearing, this Court can take an important first step toward ensuring that Mr. Henderson and other indigent residents of Cook County are not faced with faulty forensic evidence by a substandard lab. Any other resolution to this litigation would strike a heavy blow to the notion of fairness and justice for all.

III. THE STATE'S LEGAL ARGUMENT IS A CLASSIC RED HERRING AND PROVIDES NO JUSTIFICATION FOR SHORT-CIRCUITING THIS LITIGATION.

The State seeks to evade meaningful pre-trial review of their flawed forensic evidence in this case by rewriting Mr. Henderson's legal arguments to focus on Frye. Even though Mr. Henderson raised no issues with regard to Frye,² the State concentrates most of their efforts in their Response to propping up an imaginary Frye argument, and then shooting it down. The motivation behind this straw-man argument is easy to see- defendants almost always lose Frye motions regarding forensic fingerprint evidence.³ In referencing Frye, the State's flawed legal

¹ The same is true of each of Mr. Henderson's factual allegations- regarding failures of quality assurance, training, validation, methodology, and accreditation- in addition to those pertaining to protocols. Mr. Henderson supported each of these claims with extensive investigation, current scientific research, and expert opinions. The State has likewise ignored the substance of these claims.

² Mr. Henderson does not claim that the entire field of forensic fingerprint comparison is flawed, such that Frye is implicated. Rather, Mr. Henderson claims that the particular flaws with the CPDLPU render the evidence in this case unreliable.

³ This is so for several reasons, including because the burden on a Frye movant is high and because the case law strongly supports a finding of general acceptance. Also, the stakes are higher for the court in Frye cases because of the precedential value of Frye decisions- the granting of a Frye challenge can affect an entire class of evidence rather than only the admissibility of scientific evidence in one particular case.

position boils down to the following- as long as a forensic discipline has passed a general acceptance inquiry under Frye, trial judges are without authority to exclude the forensic evidence for any reason, no matter how flawed and unreliable the evidence may be. This Court should reject the State's legal argument, both because this case is not a Frye case and because this Court has a separate and important gatekeeping responsibility under Rule of Evidence 403 to exclude unreliable fingerprint evidence.

Pursuant to their gatekeeping function and independent of Frye, trial judges have an important role in scrutinizing expert claims prior to trial, and excluding such claims that are not demonstrably reliable. See, Roach v. Union Pacific Railroad, 19 N.E.3d 61, 70 (1st Dist. 2014)(holding that courts "act as 'the gatekeeper' allowing through only reliable and relevant evidence for consideration by the jury," and also holding that courts have "considerable leeway in deciding how to go about determining whether a particular [medical] expert's testimony is reliable"); See also, Decker v. Libell, 737 N.E.2d 623, 625 (Ill. 2000)(stating that in assessing expert testimony, the trial court "serves the role as 'gatekeeper,' barring testimony that is not sufficiently relevant or reliable to be admitted into evidence); See also, Illinois v. Taylor, 782 N.E.2d 920, 927 (2nd Dist. 2002)(holding that "as the gatekeeper of expert opinions disseminated to the jury, the trial court must look behind the expert's conclusion and analyze the adequacy of the foundation," and further holding that "the trial court is not required to blindly accept an expert's assertion that his or her testimony has an adequate foundation"). For instance, in Soto v. Gaytan, the trial court denied the defendant's pre-trial motion to exclude medical expert testimony and the defendant appealed. Soto v. Gaytan, 728 N.E.2d 1126 (2nd Dist. 2000). On appeal, the Second District described the important duties trial judges have (none of them in this case Frye-based) when deciding whether expert testimony is admissible. The Soto court held

that “as gatekeeper of expert opinions disseminated to the jury, the trial court plays a critical role in excluding testimony that does not bear an adequate foundation of reliability.” Id. at 1133. Unrelated to Frye, the Soto court stated that trial judges need not “blindly accept the expert’s assertion that his testimony has an adequate foundation.” Id. Rather, the Court held that “scrutiny is required because an expert’s opinion bears an aura of reliability and trustworthiness,” and the Court directed trial judges to assess the “bases and reasons for the opinion [of an expert].” Id. at 1132-1133.

In addition, Rule of Evidence 403 authorizes trial judges to exclude evidence that confuses or misleads the trier of fact, and trial judges rely on this rule when excluding improper expert claims. Ill.Rule.Evid. 403; See also, U.S. v. Van Wyk, 83 F. Supp. 2d 515 (D.N.J. 2000)(holding that “in assessing a proffer of expert testimony [], the court must also consider other applicable rules such as F.R.E. 403. . .”); See also, U.S. v. Santillan, 1999 WL 1201765 (N.D. Cal. 1999)(holding that handwriting comparison testimony was more prejudicial than probative); See also, William v. Reynolds, 904 F.Supp. 1529 (E.D. Okla. 1995) (holding that the probative value of hair comparison evidence is substantially outweighed by its prejudicial effect); See also, Bowers, “Forensic Testimony: Science, Law and Expert Evidence,” Academic Press, 2014 (stating that courts can use Rule 403 to exclude expert testimony that is unfairly prejudicial); See also, Mnookin, “The Courts, The NAS, and the Future of Forensic Science,” Brooklyn Law Review, Vol. 75, p. 51-55 (2010). This obligation is separate and distinct from issues surrounding Frye and general acceptance. And while the State did not acknowledge in their Response the role that Rule 403 has in the Court’s pre-trial assessment of the admissibility of the forensic evidence in this case, the State has conceded the importance of Rule 403 in other recent litigation regarding the admissibility of forensic evidence. (Attachment Z, p. 2, 16).

For the many reasons argued in Mr. Henderson's Motion to Exclude Fingerprint Testimony, this Court should exercise its gatekeeping function and exclude the proffered fingerprint testimony. (Motion to Exclude Fingerprint Testimony, p. 41-46). As explained at length, the proffered opinion of the CPDPLU is unreliable due to the many systemic failures in the CPDPLU. Additionally, the testimony of the CPDPLU examiner would greatly mislead the trier of fact due to the important ways in which the examiner (due to lack of adequate training) will misstate the scientific foundation and limitations of forensic fingerprint evidence:

CPD Claims

- Fingerprint opinions are objective.
- Fingerprint comparison can identify the source of a print to the exclusion of all others in the world.
- There is a 0% chance that an error was made in this case, and I am not willing to discuss recognized error rate studies.
- The use of AFIS in this case does not change anything, because the examiner still makes the final decision.
- The non-blind method I used in this case is generally accepted and cognitive bias is not a problem.

Accurate Claims

- Fingerprint opinions are subjective.
- Fingerprint examiners must refrain from making claims of absolute source attribution.
- False positive errors happen, and studies show they happen in as many as 1 in 18 cases.
- Errors are more likely in AFIS cases because of close non-matches in large databases.
- The non-blind method I used in this case increases the chance of error due to cognitive bias.

IX. THE FACT THAT THE STATE SOUGHT A SECOND OPINION REGARDING THE FINGERPRINT EVIDENCE DOES NOT EFFECT THIS PRE-TRIAL ADMISSIBILITY LITIGATION.

Not only does a second opinion by another examiner not settle any of the important issues of systemic failure raised in Mr. Henderson's Motion to Exclude Fingerprint Testimony, it likewise does not settle another important question that will be contested later at trial- whether the fingerprint in this case is properly associated to Mr. Henderson. One important lesson from

the fingerprint misidentification fiasco in the Brandon Mayfield case is that second opinions- and third and fourth opinions- can be just as wrong as the initial opinion.⁴

The events leading to the Mayfield fingerprint misidentification began on March 11, 2004, when terrorists detonated bombs on trains in Madrid, Spain, killing 200 people.⁵ Within days of the bombing, the FBI (considered by some to be the world's leading crime lab and unquestionably better resourced than the CPDLPU) assigned some of their most experienced fingerprint examiners to analyze a fingerprint found on a bag of detonators connected to the terrorists.⁶ Leading the FBI fingerprint team was Unit Chief Michael Wieners, who both reviewed the fingerprint evidence and assigned other FBI fingerprint examiners to the case. Wieners first assigned Terry Green to work on the high-profile case due to this "extensive experience and strong skills." Green conducted his examination and erroneously concluded that the print from the detonator bag matched an attorney named Brandon Mayfield, who lived in Oregon and had never been to Spain.⁷ Next, Wieners assigned another examiner, John Massey, to the case to "verify" the results. Massey had 35 years of experience as a latent print examiners, and Wieners selected Massey due to his "extensive skill and extensive experience." Massey, along with Wieners, both "verified" the erroneous fingerprint association to Mayfield.⁸ Finally, one additional experienced examiner (retained by Mayfield's lawyers) conducted another full review of the fingerprint evidence and likewise erroneously agreed with the false fingerprint association to Mayfield.⁹

⁴ Office of Inspector General, "A Review of the FBI's Handling of the Brandon Mayfield Case," U.S. Department of Justice, 2006.

⁵ Id.

⁶ Id. at 30-33.

⁷ Id. at 30-31.

⁸ Id. at 32-33.

⁹ Id. at 80.

This complicated tale of forensic failure includes a very simple lesson for the criminal justice system- a second or third or fourth opinion does not settle the factual matter of whether a fingerprint can accurately be associated to a suspect. For this reason, this Court must reject the State's claim that the important issues contained in Mr. Henderson's Motion to Exclude Fingerprint Testimony are somehow moot because the State has sought a second opinion. Rather, this Court should proceed to the merits of this litigation to determine as a factual matter the extent of systemic failure with the CPDLPU, the effects of these failures on the reliability of the forensic evidence this case, and whether the trier of fact should be exposed to the misleading opinions of the CPDLPU fingerprint examiner in this case.

X. CONCLUSION

For the reasons stated above, Mr. Henderson requests that this Court do the following:

- 1) Exclude the results of the fingerprint examination in this case,
- 2) Order that the LPU pass an independent and comprehensive audit before the results of fingerprint examinations by the LPU will be admitted into evidence in this Court,
- 3) Conduct an evidentiary hearing to further establish the factual basis of claims made herein.

Respectfully Submitted,



Brendan Max, Carly Patzke

Cook County Public Defender Office